

V(A). Planned Program (Summary)

Program # 18

1. Name of the Planned Program

Increasing Profitable Crop Yields Above Trendline-2014 (Extension)

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%	
133	Pollution Prevention and Mitigation	5%		0%	
204	Plant Product Quality and Utility (Preharvest)	5%		0%	
205	Plant Management Systems	20%		0%	
211	Insects, Mites, and Other Arthropods Affecting Plants	15%		0%	
212	Pathogens and Nematodes Affecting Plants	13%		0%	
213	Weeds Affecting Plants	20%		0%	
402	Engineering Systems and Equipment	7%		0%	
601	Economics of Agricultural Production and Farm Management	5%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	17.0	0.0	0.0	0.0
Actual	4.0	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
204979	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
204979	0	0	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 program includes specific areas of plant production including pest (weed, insect & disease) management, soil fertility, tillage/soil erosion, soil water/drainage, precision application of inputs and plant genetic evaluation.

Increasing field crop yields through technology adoption.

Producing high-value crops on small tracts of land.

Growing alternative crops for bioenergy.

Crop Observation and Recommendation Network Newsletter

Crop Production Conference

Crop Profit

Multiple Regional/Local Agronomy Meeting/Workshops

Website

Local/On-Farm Research

Field Days

Bulletins/Fact Sheets/Publications

Work with Media and OSU Communications Technology

Building relationships with commodity organizations and agencies

Build relationships across other teams in OSU Extension.

Computer training on technologies for agronomic applications

Precision ag data management analysis and decision workshops

Develop educational programs and tools to improve the efficiency of nitrogen utilization to improve farm economics and reduce environmental impact.

Develop a user friendly manure nutrient credit spreadsheet for livestock and crop producers

2. Brief description of the target audience

Grain Producers and cash forages of both commercial size and part-time

Agriculture Industry- Fertilizer chemical retailers, Input company representatives, crop advisors

Certified Crop Advisors

Non-agronomic specialized educators

Agency Soil and Water Conservation Districts, Natural Resources Conservation Service, Ohio Department of Agriculture and Environmental Protection Agency

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	5000	40000	0	1000
Actual	17816	187218	0	650

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

Patent Applications Submitted

Year: 2010
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Plan	1	0	
Actual	16	0	16

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Crop Observation and Recommendation Network Newsletter to be published 40 times per year, and to be distributed to 5,000 farmers and professionals.

Year	Target	Actual
2010	5000	7200

Output #2

Output Measure

- Multiple Regional/Local Agronomy Meeting totaling 40 which reaches 2500 people with agronomic information.

Year	Target	Actual
2010	2500	3800

Output #3

Output Measure

- Production and Issues Workshops totaling 15 reaching 300 people
Not reporting on this Output for this Annual Report

Output #4

Output Measure

- Website which reaches an estimated 60,000 hits per year

Year	Target	Actual
2010	100000	3300000

Output #5

Output Measure

- Local/On-Farm Research project sites.

Year	Target	Actual
2010	20	16

Output #6

Output Measure

- Field Days totaling 5 location and reaching 500 people

Year	Target	Actual
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2010 500 650

Output #7

Output Measure

- Weed Control Guide for Ohio and Indiana 4000 distributed annually

Year	Target	Actual
2010	4000	5500

Output #8

Output Measure

- Tri-State Fertilizer Recommendations for Corn, Soybean, Wheat and Alfalfa 250 distributed annually.

Year	Target	Actual
2010	250	178

Output #9

Output Measure

- Field Crop Insects of Ohio distribution
Not reporting on this Output for this Annual Report

Output #10

Output Measure

- Corn, Soybean, Wheat and Alfalfa Field Guide 1000 distributed annually

Year	Target	Actual
2010	1000	2200

Output #11

Output Measure

- Corn Disease Management in Ohio distribution
Not reporting on this Output for this Annual Report

Output #12

Output Measure

- Profitable Soybean Disease Management in Ohio 500 distributed annually
Not reporting on this Output for this Annual Report

Output #13

Output Measure

- Wheat Disease Management in Ohio 250 distributed annually
Not reporting on this Output for this Annual Report

Output #14

Output Measure

- Seed Treatment for Ohio Agronomic Crops 150 distributed annually
Not reporting on this Output for this Annual Report

Output #15

Output Measure

- Ohio Agronomy Guide 700 distributed annually

Year	Target	Actual
2010	700	380

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Those who participate in technology workshops will improve efficiency of field activities by \$15 per acre.
2	25% of meeting participants will indicate they will implement new management practices based on information received at the meetings.
3	25% of Ohio's Corn acres will implement a nitrogen efficiency model for their farm.
4	25% of crop production acres will implement weed resistance management strategies.
5	Utilization of appropriate IPM practices for disease and insect will occur on 15% of Ohio crop acres.
6	Number of individuals taught about disease identification, control and scouting or key weed control concepts.
7	Number of participants with an increase in knowledge of farm financial analysis and risk management.
8	Number of farmers reporting positive changes in management and or profitability of their farm from use of the disease identification, control and scouting or key weed control concepts.
9	Number of farmers reporting positive changes in management and or profitability of their farm from use of information from farm financial analysis.
10	Reported economic impact of cost savings, increased yield or other increased profitability from use of CORN newsletter reported as total dollars.
11	Reported economic impact of cost savings, increased yield or other increased profitability from use of disease identification, control and scouting or key weed control concepts reported as total dollars.
12	Reported economic impact of cost savings, increased yield or other increased profitability resulting from farm financial analysis.
13	Crop Observation and Recommendation Network Newsletter as an effective delivery tool for agronomic crop information.
14	Understanding the role of Phosphorous in Ohio's Waters for 2010 and BMP's.

Outcome #1

1. Outcome Measures

Those who participate in technology workshops will improve efficiency of field activities by \$15 per acre.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

25% of meeting participants will indicate they will implement new management practices based on information received at the meetings.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	25	80

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Increasing productivity to meet multiple demands of crop commodity utilization in food security and manufacturing is a critical goal with world wide implications. Tight supplies of commodities has caused price spikes in recent years and average price levels substantially above long term trends. With growing world populations, filling world grain needs is a critical issue. The public also demands that this production happen with minimal harmful effects on the environment.

What has been done

Twenty eight meetings were held across Ohio focused on agronomic production issues and increasing productivity from an economic and environmental concern. The programs give farmers and crop consultants access to extension specialist and educators doing research in different aspects of crops production resulting in BMP development. Topics include genetic selection, pest management, resistance management, tillage, water management and on-farm research.

Results

Programs attracted 5600 participants represent over 2.5 million acres of crop production. Participants indicated through anecdotal comments and random survey that the found information presented would be used to make management decisions on their operation 80% of the time. The topics represented new information 15% of the time and information that added to what they knew 70% of the time. Participants reported an economic value of \$3.9 million dollars.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
133	Pollution Prevention and Mitigation
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
402	Engineering Systems and Equipment
601	Economics of Agricultural Production and Farm Management

Outcome #3

1. Outcome Measures

25% of Ohio's Corn acres will implement a nitrogen efficiency model for their farm.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

25% of crop production acres will implement weed resistance management strategies.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	25	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Adaptation of herbaceous plants to herbicide has been a occurrence throughout modern crop production. Species with resistance to ALS chemistry products was found in the early 1990's. The quick adaption of glyphosate weed control systems in the late 90's has lead to multiple species of confirmed resistant species. In fact species with resistance population to both ALS and glyphosate are known. The problem is more predominate in southern Ohio but northwest Ohio started identifying pockets in 2010.

What has been done

Research and educational programs have focused on weed management systems that incorporate integrated weed management concepts, better selection of burndown products, increased use of preemergence products to introduction alternative modes of action and alternative production systems have been suggested.

Results

Anecdotal evidence suggest an increased use of preemergence products and better selection of burndown herbicides is being adopted by farmer in the areas of concern with resistance.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants

Outcome #5

1. Outcome Measures

Utilization of appropriate IPM practices for disease and insect will occur on 15% of Ohio crop acres.

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Number of individuals taught about disease identification, control and scouting or key weed control concepts.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	2294

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Understanding proper identification and scouting is the foundation of IPM utilization.

What has been done

Training session, programs and newsletters have provided information on identification and proper scouting to farmers and ag industry.

Results

A total of 2294 individuals participated in these sessions which covered disease insects and weeds in corn, soybean and wheat production. Of the participants, 972 reported a positive change in management or profitability accounting for \$450,000 worth of value.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants

Outcome #7

1. Outcome Measures

Number of participants with an increase in knowledge of farm financial analysis and risk management.

Not Reporting on this Outcome Measure

Outcome #8

1. Outcome Measures

Number of farmers reporting positive changes in management and or profitability of their farm from use of the disease identification, control and scouting or key weed control concepts.

Not Reporting on this Outcome Measure

Outcome #9

1. Outcome Measures

Number of farmers reporting positive changes in management and or profitability of their farm from use of information from farm financial analysis.

Not Reporting on this Outcome Measure

Outcome #10

1. Outcome Measures

Reported economic impact of cost savings, increased yield or other increased profitability from use of CORN newsletter reported as total dollars.

Not Reporting on this Outcome Measure

Outcome #11

1. Outcome Measures

Reported economic impact of cost savings, increased yield or other increased profitability from use of disease identification, control and scouting or key weed control concepts reported as total dollars.

Not Reporting on this Outcome Measure

Outcome #12

1. Outcome Measures

Reported economic impact of cost savings, increased yield or other increased profitability resulting from farm financial analysis.

Not Reporting on this Outcome Measure

Outcome #13

1. Outcome Measures

Crop Observation and Recommendation Network Newsletter as an effective delivery tool for agronomic crop information.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	122968

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Utilization of Extension Agronomic information is often questioned in its value. The Crop Observation and Recommendation Network Newsletter is product original developed in 1996. The news letter deliveries timely agronomic production, pest management news and relevant recommendation form university research on those best management practices to agriculture industry, farmers, government agencies, media outlets and other interested individuals.

What has been done

Product is produced 40 times per year and delivered in a variety of electronic formats, e-mail, web, and mobile web. The newsletter is linked through multiple industry and media sites. The information from articles is reproduced in multiple print media in the state as well.

Results

Direct user subscriptions for the news letter are 2415 who receive issue upon publication immediately via e-mail. The newsletter is access annually by 115,768 unique visitors via the website. The bi-monthly publication Ohio's Country Journal regular publishes multiple articles from the newsletter and is sent to 21,000 Ohio crop producers plus are added to their website.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
133	Pollution Prevention and Mitigation

204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
402	Engineering Systems and Equipment
601	Economics of Agricultural Production and Farm Management

Outcome #14

1. Outcome Measures

Understanding the role of Phosphorous in Ohio's Waters for 2010 and BMP's.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	693

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

During 2010 several watersheds in Ohio had reports of cyano-bacteria blooms leading to beach closures causing much public concern particularly in the Grand Lake Saints Mary's and Lake Erie watersheds. Research and educational programs have been on going related to BMP's for phosphorous, sediment and other nutrients. The events provided a teachable moment to focus on BMP's to improve water quality.

What has been done

Extension programming has included educational programs and demonstration projects on use of cover crops, alternatives to land application of nutrients, setbacks in manure and nutrient application and soil testing nutrient management. Inter agency in-services were held to explore the science behind phosphorous and understanding of the 2010 water issues. Other education programs were aimed at nutrient planners both TSP's and NRCS/SWCD.

Results

Ninety-five nutrient planners attended a two-day session on nutrient planning tools for CNMP and commercial fertilizer. The program tied the users with the software developers and was indicated to be very useful based on after meeting comments. Educational programs on use of a paper nutrient management planning workbook for non computer users was held for 328 farmers and SWCD personnel. Cover crop workshops were held at multiple events reaching 450 with information on the practice. A one day interagency workshop with participation from 75 individuals from EPA, Watershed groups, SWCD, NRCS, Extension and Farm Bureau. Phosphorous in Ohio's Waters workshop was highly rated and helped provide a basis of understanding of issues and BMP's.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
133	Pollution Prevention and Mitigation
205	Plant Management Systems
402	Engineering Systems and Equipment
601	Economics of Agricultural Production and Farm Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

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

1. Evaluation Studies Planned

- Other (focus groups)

Evaluation Results

Below are generalized answers to a line of questioning used at 4 locations across the state where focus groups related to agronomic crops was held. **What is the most valuable**

agronomic information provided to you by the Agronomic Crops Team? CORN newsletter (listed at least 5 times); corn performance trials; custom rates; SCN research; **Having an extension educator to contact to contact when your crop is in jeopardy; Describe the value of CORN newsletter to your farm or business.** The following represent different farmer, ag dealer quotes about CORN: Huge, Comprehensive and timely; It is just very valuable information; It is to the point and valuable, it doesn't get thrown to the bottom of the pile; go to as soon as it comes out; The newsletter is definitely a hit. **How do you access agronomic information? (web, newsletters, company representatives, OSU Agronomy Programs, Extension Educator other)** Internet; email **Explain the value of non-biased agronomic information to your operation?** I think it is huge; Extension is only non-biased source we have; Weed Control Guide is kind of like the bible when you are looking at different chemicals; I think it is very valuable to have a separate third party, OSUE is not selling anything

Key Items of Evaluation

OSU Extension is a valued source of unbiased information on a variety of issues related to crop production. The delivery of electronic information is a valued resource for clientele and has been practiced in Ohio for 14 years. Extension fills a hole in information from the private sector which is focused on selling products and helps to incorporate that private information with production systems that are not a focus of that private sector. Extension also puts an environmental impact focus on production systems.