

V(A). Planned Program (Summary)

Program # 15

1. Name of the Planned Program

Enhancing Agriculture and the Environment (Extension)

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
102	Soil, Plant, Water, Nutrient Relationships	10%		0%	
112	Watershed Protection and Management	15%		0%	
123	Management and Sustainability of Forest Resources	5%		0%	
133	Pollution Prevention and Mitigation	10%		0%	
205	Plant Management Systems	15%		0%	
216	Integrated Pest Management Systems	15%		0%	
307	Animal Management Systems	10%		0%	
601	Economics of Agricultural Production and Farm Management	10%		0%	
602	Business Management, Finance, and Taxation	10%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	34.0	0.0	0.0	0.0
Actual Paid	49.7	0.0	0.0	0.0
Actual Volunteer	10.2	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
2794498	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
2794498	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

- Enhance the adaptation of production techniques through utilization of on-farm research to work directly with producers to evaluate practices to enhance productivity and profitability
 - Conduct workshop training sessions for livestock haulers, food animal veterinarians, livestock producers, consultants and integrators
 - Prepare and distribute research-based educational materials in the areas of animal welfare and biosecurity through worksheets, factsheets, web-based sites, podcasts, and other emerging technologies
 - Conduct tax education workshops for practitioners
 - Conduct Pesticide Applicator Trainings for private and commercial license holders
 - Conduct Fertilizer Applicator Certification training sessions
 - Organize and conduct the two 2014 Small Farm Conference and the Small Farm College series
 - Organize and conduct Transitioning Your Farm Business to the Next Generation Workshops
 - Organize and conduct Women in Agriculture / "Annie's Project" seminars
 - Organize and conduct the 2014 Eastern Ohio Women in Agriculture Conference as well as showcase the "100 Women in Agriculture" display that was debuted at the 2014 Farm Science Review
 - Organize and conduct educational activities targeted at proper nutrient utilization, crop response and water quality concerns
 - Organize and conduct meetings, seminars, conferences, programs and activities for the new "Local Foods" signature program (this program will address the critical need for outreach education around the broad topic of local food systems)
 - Organize and conduct educational workshops, training sessions, and seminars for Master Gardener Volunteers
 - Jointly update and publish the 2015 Weed Control Guide for Ohio and Indiana
 - Organize, plan and conduct seminars, workshops and meetings to assist landowners, foresters, and loggers manage Ohio's natural resources in economically viable and environmentally friendly ways

2. Brief description of the target audience

- Ohio citizens
- Commercial green-industry companies
- Consumer horticulture advocates
- Commodity / farm advocacy groups
- Federal and state agricultural / environmental agencies

- State-wide consumer groups
- Volunteer groups
- Community leaders
- Business leaders
- Elected and appointed officials
- Non-government organizations
- Tax practitioners and preparers
- Female agricultural or agricultural-related business owners / partners
- Small and beginning farmers
- Pesticide license holders (commercial and private)
- Ohio farmers
- Livestock haulers
- 4-H and FFA youth exhibiting livestock projects
- Livestock producers
- Manure haulers and applicators
- Fertilizer applicators (commercial and private)
- Forest landowners
- Professional foresters and loggers
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3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	380188	643076	6513	6853

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

Patent Applications Submitted

Year: 2014
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	154	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- number of volunteers involved in delivery and implementation of program

Year	Actual
2014	5458

Output #2

Output Measure

- number of multi-state partnerships

Year	Actual
2014	8

Output #3

Output Measure

- number of people completing the 'Transitioning Your Farm/Agricultural Business to the Next Generation' workshops

Year	Actual
2014	44

Output #4

Output Measure

- number of 'Crop Observation and Recommendation Network' newsletters distributed

Year	Actual
2014	160000

Output #5

Output Measure

- number of participants attending regional / local agronomy meetings

Year	Actual
2014	147060

Output #6

Output Measure

- number of hits to website

Year	Actual
2014	360000

Output #7

Output Measure

- number of local / on-farm research project sites

Year	Actual
2014	32

Output #8

Output Measure

- number of participants in local Field Days

Year	Actual
2014	2100

Output #9

Output Measure

- number of 'Weed Control Guide for Ohio and Indiana' distributed

Year	Actual
2014	3400

Output #10

Output Measure

- number of 'Corn, Soybean, Wheat and Alfalfa Field Guides' distributed

Year	Actual
2014	810

Output #11

Output Measure

- number of people participating in an OSUE Local Foods program, activity, conference, or workshop

Year	Actual
2014	4877

Output #12

Output Measure

- number of hits to the invasive species website (Great Lakes Early Detection Network)
Not reporting on this Output for this Annual Report

Output #13

Output Measure

- number of individuals taught about disease identification, control, and scouting or other key weed control concepts

Year	Actual
2014	312

Output #14

Output Measure

- number of people attending 'Bed Bugs' educational talks and meetings
Not reporting on this Output for this Annual Report

Output #15

Output Measure

- number of people attending the 'New and Small Farm College'

Year	Actual
2014	693

Output #16

Output Measure

- number of people attending the 'Small Farm Conference and Trade Show'

Year	Actual
2014	200

Output #17

Output Measure

- number of producers completing direct and indirect education on 'Weed Control in Agronomic Crops'

Year	Actual
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2014 1243

Output #18

Output Measure

- number of 'Field Crop Insects of Ohio' media distributed
Not reporting on this Output for this Annual Report

Output #19

Output Measure

- number of 'Ohio Agronomy Guide' media distributed

Year	Actual
2014	1200

Output #20

Output Measure

- Number of food animal producers that complete 'Livestock Mortality Composting' training

Year	Actual
2014	72

Output #21

Output Measure

- number of program participants that are considered to be under-represented

Year	Actual
2014	37765

Output #22

Output Measure

- number of volunteer hours worked

Year	Actual
2014	21143

Output #23

Output Measure

- number of new Master Gardener Volunteers

Year	Actual
2014	987

Output #24

Output Measure

- number of direct contacts through the 'Nutrient Stewardship for Cleaner Water' signature program

Year	Actual
2014	2807

Output #25

Output Measure

- number of people attending the Farm Science Review event

Year	Actual
2014	131153

Output #26

Output Measure

- number of Certified Crop Advisors (CCAs) in Ohio

Year	Actual
2014	540

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of people (agronomic crops, fruit and vegetable producers) that demonstrate an increase in plant-based food biosecurity / biosafety knowledge
2	number of people indicating an increased knowledge of current practices and emerging technology in conservation tillage
3	Increase profitability for the food animal sector of the Ohio agricultural industry, measured in number of farms completing detailed financial and production data lists
4	Number of Schedule "F" tax forms filed by tax practitioners that participated in OSU Income Tax Schools.
5	Number of farms using transitioning planning.
6	number of Increasing Profitable Crop Yields participants that indicate they will implement new management practices based on information received at meetings
7	number of crop production acres that will implement best management practices for nutrient management
8	number of crop production acres that implement weed resistance management strategies
9	number of Ohio crop acres where appropriate utilization of integrated pest management (IPM) practices occur
10	number of individuals who learned something about disease identification, control, and scouting or key weed control concepts
11	number of farmers reporting positive changes in management and / or profitability of their farm from the use of disease identification, control and scouting or key weed control concepts
12	number of farmers reporting positive changes in management and / or profitability of their farm as a result of information from farm financial analysis
13	reported economic impact of cost savings, increased yield, or other increased profitability from use of CORN newsletter reported as total dollars
14	number of acres of Ohio crop land impacted by consultations provided by OSU Extension certified CCAs (Certified Crop Advisors)
15	number of acres of forest land impacted by OSU Extension programming
16	number of individuals who plan to implement on their farm one of the learning outcomes from OSUE programming related to: disease identification and control, scouting, or key weed control concepts

Outcome #1

1. Outcome Measures

Number of people (agronomic crops, fruit and vegetable producers) that demonstrate an increase in plant-based food biosecurity / biosafety knowledge

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	131400

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A safe and sustainable food supply begins with the ability of producers to make and handle food in ways that ensures food safety and quality. The need for food safety is more important than ever, as our food is coming from increasingly diverse sources.

What has been done

Good Agricultural Practice (GAP) programs have been delivered to fruit and vegetable growers, educating participants about on-farm food safety practices that can help reduce the risk of produce contamination. Agronomic Crop Field Days, webinar series, and workshops have been held to educate about on-farm food safety practices that can help reduce the risk of on-farm grain contamination.

Results

There were over 180,000 attendees at programs dealing with sustainable agriculture, fruit and vegetable crops, agronomic crops, water quality, and other related issues with 131,400 individuals reporting a gain in knowledge (approximately 73%) of on-farm food bio-security / bio-safety.

4. Associated Knowledge Areas

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

205 Plant Management Systems

Outcome #2

1. Outcome Measures

number of people indicating an increased knowledge of current practices and emerging technology in conservation tillage

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	720

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The sustainable management of our soil resources is paramount to maintaining not only the \$100 billion agricultural industry in Ohio, but also in preserving environmental integrity. Ensuring quality knowledge and best practices amongst farmers is a goal of OSU Extension programming in the 'Enhancing Agriculture and the Environment' programming. The management of soil resources directly impacts all citizens of Ohio, as the quality of soil directly impacts the quality of food harvested.

What has been done

Each year, OSU Extension hosts the Conservation Tillage Conference (CTC), a two day event which features approximately 60 speakers addressing attendees at concurrent sessions. Speakers address such topics as: cover crops, nutrient management, soil and water quality, and no-till systems. The CTC attracts approximately 900 attendees annually, which includes farmers, certified crop consultants, industry representatives, and others interested in sustainable farming.

Results

Approximately 80% (720) of participants at the 2014 CTC report that they gained useful knowledge which they plan to implement during the next growing season, and that they expect to see an increase in productivity and a reduction in costs as a result of knowledge gained from OSUE programming.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
205	Plant Management Systems
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

Increase profitability for the food animal sector of the Ohio agricultural industry, measured in number of farms completing detailed financial and production data lists

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	78

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Good management is key to the success of any small business. To ensure a sustainable and affordable supply of food, it is essential that animal businesses be financially viable.

What has been done

In 2014, to address profitability of the food animal sector of the Ohio agricultural industry, OSU Extension offered workshops and training sessions for livestock haulers, food animal veterinarians, livestock producers, aquaculture producers and consultants. Participants at these workshops received OSUE-prepared educational materials (worksheets, fact sheets, web sites, podcasts) on animal welfare and biosecurity.

Results

Approximately 40% (78) of the 200 livestock producers attending farm financial management classes in 2014 indicated they were implementing new financial management procedures as a result of OSUE-led workshops.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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307 Animal Management Systems

Outcome #4

1. Outcome Measures

Number of Schedule "F" tax forms filed by tax practitioners that participated in OSU Income Tax Schools.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	9243

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The OSU Income Tax School program has been providing education for tax preparers for over 50 years. Instruction focuses on tax law changes and problems faced in preparing tax returns. The tax school is designed for tax preparers with some experience preparing and filing federal tax returns for individuals and small businesses. Additionally, the OSU Tax School offers an 'Agricultural Tax Issues and Form Preparation' workshop concerning the special issues with farm tax returns. Continuing education credits are available for attorneys, CPAs, EAs, and CFPs.

What has been done

OSU Tax Schools were conducted in eight face-to-face sessions and via three webinars throughout Ohio in 2014.

Results

737 total attendees came to the eight face-to-face two day workshops, and an additional 526 attendees viewed one of three webinar sessions. These 1,263 tax preparers helped to prepare 9,243 Schedule F tax forms for Ohio farm and small business owners in 2014.

4. Associated Knowledge Areas

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation

Outcome #5

1. Outcome Measures

Number of farms using transitioning planning.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	36

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

As farm owners age, they have concerns about what to do with the family farm, and other future quality of life issues. The need for a developed farm transfer plan, as well as strong family communication regarding the process of transitioning the farm to the next generation is very important to minimize family stress and make the transition process as simple and easy as possible. Farm transitioning has the potential to impact long term stability of the food supply chain.

What has been done

"Transitioning the Farm to the Next Generation" workshops were held around the state in 2014. Topics addressed in workshops included the effect of the new estate tax laws on farm estate settlement costs, distribution options for heirs, options for farm heirs to purchase farm assets, LLCs to protect farm assets and personal assets, and ways to protect assets from long-term care issues.

Results

As a result of OSUE programming, 36 new farm families are using long-term planning for transition to the next generation and future quality of life issues. In one county, an assessment showed that 78% of participants planned to implement (within the next six months) a regular monthly family business meeting to discuss farm business and transitioning issues.

4. Associated Knowledge Areas

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation

Outcome #6

1. Outcome Measures

number of Increasing Profitable Crop Yields participants that indicate they will implement new management practices based on information received at meetings

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	726

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

New agricultural crops and practices are continually being developed. These new practices and crops can help farmers improve production methods, increase revenue and productivity, all while enhancing environmental quality.

What has been done

Topics at agronomy programs focus on maximizing production, integrated pest management, reducing pesticide resistance, understanding social impacts of agricultural practices, and best management adoption. These issues are delivered to Ohio farmers at numerous field days, the conservation tillage conference, and Farm Science Review.

Results

726 farmers who attended 'Increasing Profitable Crop Yields' programming reported increased crop yields.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
216	Integrated Pest Management Systems

Outcome #7

1. Outcome Measures

number of crop production acres that will implement best management practices for nutrient management

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	100000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Improper fertilizer application methods used on Ohio farmlands can have disastrous results. Applying fertilizer to fields at the wrong time, using the wrong rates can result in runoff of valuable nutrients, which often end up in large bodies of freshwater. Excess phosphorus, in particular, can be very damaging to water -- it encourages harmful algal blooms, which impact water quality. Education regarding nutrient management best practices saves farmers money by minimizing wasted fertilizer and increasing crop yields. Drinking water stays safer, with a decreased amount of phosphorus entering freshwater.

What has been done

OSU Extension teaches landowners about nutrient management best practices through a wide array of programs about the importance of soil and water quality. This is done through field days, workshops, short courses, demonstrations, conferences, and one-on-one interactions.

Results

1,309 producers were trained in Fertilizer Certification Applicator Training and another 150 were trained in 4R (Right Source, Right Rate, Right Time, Right Place) nutrient management. These trainings have improved the use of fertilizers on over 100,000 acres of Ohio farmland.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management

133	Pollution Prevention and Mitigation
205	Plant Management Systems

Outcome #8

1. Outcome Measures

number of crop production acres that implement weed resistance management strategies

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	250000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Weed resistance is an increasing problem in row crop agriculture. As weeds become resistant to herbicides, they are harder and more expensive to control. This drives up costs, and if control efforts aren't successful, crop yields are reduced.

What has been done

Research and education programs have been designed and delivered to discuss alternative herbicides and weed control strategies, the reasons for herbicide resistance, and what farmers can do to mitigate this looming threat.

Results

393 participants have reported positive changes in their farm use of key weed control concepts learned in weed management educational programs conducted by OSU Extension.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
216	Integrated Pest Management Systems

Outcome #9

1. Outcome Measures

number of Ohio crop acres where appropriate utilization of integrated pest management (IPM) practices occur

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	170000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Utilizing integrated pest management (IPM) practices protects cropland yields from insects, diseases, and weeds. Weed resistance is an increasing problem in row crop agriculture. As weeds become resistant to herbicides, they are more difficult and expensive to control. Rapid identification of insect pests is important to provide timely treatments to eliminate the insects and prevent them from destroying crops. Loss of crops due to pests has major implications for the sustainability of the food chain, as well as economic repercussions as food costs are driven up by scarcity of supply.

What has been done

Research and educational programs have been designed and delivered to discuss alternative herbicides and weed control strategies, the reasons for herbicide resistance, and what farmers can do to mitigate the looming threat. Scouting programs use traps to monitor insect pests.

Results

In Wayne County, Ohio, an IPM scouting program provides weekly scouting visits and timely pest management recommendations to subscribed growers. This program uses traps to monitor insect pests. In July 2014, the spotted wing drosophila (SWD) was detected in traps in three county locations. A spray advisory was then issued to IPM-subscribed growers. Timely spraying to treat for SWD (and other identified pests) will literally save thousands of dollars of fruit crops in the area. Wayne County IPM scouting program subscribers reported the following: 71% say they have increased their knowledge of pests; 73% have had an increase in net farm income; 86% make more timely applications of pesticides.

4. Associated Knowledge Areas

KA Code **Knowledge Area**
216 Integrated Pest Management Systems

Outcome #10

1. Outcome Measures

number of individuals who learned something about disease identification, control, and scouting or key weed control concepts

Not Reporting on this Outcome Measure

Outcome #11

1. Outcome Measures

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

Not Reporting on this Outcome Measure

Outcome #12

1. Outcome Measures

number of farmers reporting positive changes in management and / or profitability of their farm as a result of information from farm financial analysis

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	4760

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Farm profitability is at the heart of sustaining Ohio's most important industry: agriculture. Over \$100 billion is contributed annually to Ohio's economy by agriculture, as well as a safe and healthy supply of food. Sound financial planning is essential if farms wish to remain viable in a

world of fluctuating weather, expenses, and crop prices.

What has been done

46 educational programs were conducted across Ohio in 2014, addressing issues of farm financial analysis. A team working cooperatively with the Farm Service Agency to educate Ohio's farmers on the Farm Bill conducted 52 training sessions on the Dairy Margin Protection Program (DMPP), Agricultural Risk Coverage (ARC), and Price Loss Coverage (PLC) programs.

Results

8,184 participants were trained in farm financial management in 2014 (including Farm Bill-related programming). 58% of participants in financial management training indicated they experienced positive changes in management and / or profitability of their farm as a result of information from farm financial analysis.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

Outcome #13

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	12500000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Farm profitability is at the heart of sustaining Ohio's most important industry: agriculture. Over \$100 billion dollars is contributed annually to the state economy from agriculture, as well as a safe and healthy food supply. OSU Extension provides the most current information available on planting success, pests, diseases, and harvesting, which gives producers the knowledge needed

to maximize productivity, and ultimately ensuring a sustainable food supply.

What has been done

The CORN (Crop Observation and Recommendation Network) newsletter is produced 40 times a year, and provides agricultural industry professionals, farmers, and other interested parties with the most up-to-date information on pest observations and predictions, weed control options, insect and disease control information, production technology, crop development issues, and timely integrated pest management guidelines.

Results

The CORN newsletter is distributed to more than 3800 subscribers annually. Subscribers have provided feedback to the editors, including: "Excellent. Easy to read and understand."; and "Overall very good information throughout the growing season. Very valuable in the ever changing spring situations."

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
216	Integrated Pest Management Systems

Outcome #14

1. Outcome Measures

number of acres of Ohio crop land impacted by consultations provided by OSU Extension certified CCAs (Certified Crop Advisors)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	10419840

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Ohio farmers rely on OSU Extension to provide research-based information regarding the latest in cover crops, nutrient management, water quality, advanced scouting and machinery, no-till, soil

quality, seeding technology and precision farming. While OSU Extension educators provide this information to farmers, there are a limited number of educators in the state. By teaching and certifying CCAs, OSUE is effectively extending their reach, and increasing capacity across the state to address farming issues.

What has been done

CCA training is offered by 65 of OSU Extension's agricultural educators. CCAs require 40 hours biannually in all of the following management categories: nutrients, pests, soil and water, and crops. OSUE educators provide training on these topics to CCAs at no cost or a nominal fee. There are approximately 540 active CCAs in Ohio as of 2014, so re-certification training is constantly needed.

Results

In 2014, more than 400 CCAs attended Ohio State University's Conservation Tillage Conference, which is offered annually. The conference featured 60 presenters and also provided opportunities for continuing education credits to be obtained. A recent study of a sample of 50 CCAs revealed that the average number of acres CCAs consult on is 19,296 acres per consultant. If we extrapolate that value to the 540 CCAs in Ohio, Certified Crop Advisers consulted on 10,419,840 acres of Ohio farmland in 2014. The economic impact that crop advisers can have on farmers is estimated to be at least \$100 per acre, which would calculate to \$1,041,984,000 of economic benefit as a result of OSU Extension training programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
205	Plant Management Systems
216	Integrated Pest Management Systems

Outcome #15

1. Outcome Measures

number of acres of forest land impacted by OSU Extension programming

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	180000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Ohio has approximately 8 million acres of forest land. This land provides a sustainable supply of timber, which accounts for approximately 20% (\$22 billion) of Ohio's annual agricultural revenue. Other direct or indirect benefits of forest land are: clean water and air, habitat for wild animals, and recreation areas.

What has been done

88 educational programs were conducted in forest and wildlife management, fisheries, and invasive species identification and control.

Results

Management activities were improved on 180,000 acres of Ohio forest land and 42 new forest stewardship management plans were developed as a result of OSU Extension programming. These forest stewardship plans are important, as they allow landowners to participate in federal and state cost share programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources

Outcome #16

1. Outcome Measures

number of individuals who plan to implement on their farm one of the learning outcomes from OSUE programming related to: disease identification and control, scouting, or key weed control concepts

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
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2014

2355

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In order to maximize crop yields, weeds must be controlled. However, one needs to be able to identify the weeds before proper control measures can be taken. The ability to identify the weeds allows the producer to control them in the most cost effective and environmentally friendly way, while providing a sustainable food supply.

What has been done

Weed identification was taught at a number of field days, the Conservation Tillage Conference, Farm Science Review, regional agronomy field days, pesticide education training, and other venues.

Results

Nearly 30% of all attendees indicated they plan on implementing practices learned in the trainings. This type of training has been reported to have over \$8 million savings to the Ohio Soybean industry alone.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
216	Integrated Pest Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes
- Government Regulations
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

Extremes in climate can impact many facets of agriculture, including: planting and harvesting success, livestock survival and productivity, and costs of production. The winter of 2013-2014 was ruthless to Ohio's wine grapes, because of polar vortex conditions. The total economic damage to Ohio's wine grape industry is estimated to be \$12 million in losses.

Changes in the economy that effect the agricultural sector (i.e., fuel and insurance costs) effect a farm's profitability and ultimately costs to the consumers.

Changes in laws and regulations happen often, which effect training needs of farmers, costs incurred, and other restrictions and limitations on productivity. In 2014, Senate Bill 150 was passed, which requires farmers with 50 or more acres to attend a course on fertilizer application. To meet the requirements of the bill, and to meet the need

for education that will aid in reducing harmful algal blooms in Ohio's freshwater bodies.

Lastly, as the Ohio population becomes more urban, there has been and will be increased pressure on farmers to change production methods, sell farm land for housing, and other land use changes.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

OSU Extension programs reached over 380,000 Ohio producers through 1,687 educational programs in 2014. An additional 1.2 million indirect contacts were reached through publications, electronic newsletters, and other means. Of these direct contacts, 22% were from under-served populations, a sign that we are increasing our reach to new clientele.

The Crop Observation Reporting Network (CORN) newsletter is directly distributed to 3800 individuals a year, with another approximately 360,000 unique hits to the website annually. Many of these hits are from foreign countries, which has led OSUE educators to provide programming overseas, helping increase productivity in foreign countries. Our international programming helps to raise the profile of the Extension network, as well as Ohio State University, around the world.

Nearly 200,000 acres of forest land were impacted by OSUE programming. This programming directly led to improved management of these forests through the creation of 42 new forest stewardship management plans.

The annual Conservation Tillage Conference teaches approximately 900 farmers, crop consultants, and other professionals about sustainable management of soil resources.

The ultimate goal of all these programs and activities is to ensure the sustainable management of Ohio's farm and forest resources, in order to provide a long-term supply of healthy food and forest products.

Key Items of Evaluation