V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Agriculture, Forestry, and Related Industries

☑ 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
124	Urban Forestry	5%	5%		
125	Agroforestry	5%	5%		
134	Outdoor Recreation	10%	10%		
135	Aquatic and Terrestrial Wildlife	10%	10%		
205	Plant Management Systems	35%	35%		
307	Animal Management Systems	25%	25%		
601	Economics of Agricultural Production and Farm Management	10%	10%		
	Total	100%	100%		

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Actual Paid Professional	35.2	0.3	0.0	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**
444155	13328	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
789648	13328	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
3664553	32784	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Worked with poultry growers testing and discussing the use of biological and chemical litter amendments to control ammonia.

Provided ongoing training to poultry industry personnel and poultry growers through stand-alone training meetings and those organized through the Alabama Poultry and Egg Association and the Alabama Feed and Grain Association.

The Auburn Plant Diagnostic Lab received 4,706 samples including 2,117 plant samples, 2,330 nematode analysis soil samples, and 259 insect identification samples. Of the plant samples 403 were regulatory survey samples and 522 were research survey samples. Of the remaining plant samples, diagnostic submissions, 104 were agronomic crop samples (9.2%).

Five workshops titled, "GPS 101: Technology for Better Land Management", were held in the counties of Cullman, Chilton, Bullock, Escambia and Clarke. Total attendance for the five workshops was ninety-two.

We continue to assist the Alabama Natural Resource Conservation Service (NRCS) in the implementation of a Precision Agriculture Incentive through the Environmental Quality Incentives Program (EQIP). The PA EQIP encourages adoption of precision ag technologies for nutrient and pest management practices to promote environmental stewardship on Alabama farms.

Forestry, Wildlife, and Natural Resources team (FWNR) provided educational programs and materials related to forest management (timber, recreation, urban), wildlife management (enhancement and damage), water resources, and environmental education.A video illustrating the value of trees to our society was developed. The video, "Why Trees?" (http://www.youtube.com/watch?v=74063UKSmXw) received over 11,500 hits.

Commercial Horticulture: Commercial Horticulture has 9 projects with Regional Extension Agents (7) and County Extension Coordinators (3) cooperating. Multiple external grants from various sources provided program support funds. External partnerships made outreach possible to large audience and new farmers statewide, partnerships included the Alabama Fruit and Vegetable Growers Association, Alabama Sustainable Agriculture Network (ASAN), Alabama Department of Agriculture and Industries (ADAI), Federation of Southern Cooperatives, Tuskegee University, Food Banks of North Alabama, Urban and Community Gardens, Natural Resources Conservation Service (NRCS-USDA), Alabama Nursery and Landscape Association, Alabama Crop Advisors Association, Wiregrass Blueberry Association, and the Dothan Landmark Park

Farm Management and Agricultural Enterprise Analysis: This team conducted activities in 4 primary areas. 1) Budgeting, planning, and evaluating costs of production; 2) The Alabama Farm Analysis Program; 3) Retirement, succession, and estate planning; and evaluating farming as a hobby versus a

business. Extension publications were developed and disseminated, meetings were conducted that focused on each of these topics, and grant funds were obtained to support these activities. The team conducted stand alone programs, but we also integrated these program activities into meetings sponsored by state and federal agencies most other extension teams. We served as a resource for providing economic evaluations and practical explanations for changes in tax laws and proposed Farm Bill changes. The broad based programs offered by this team served as a complement to the activites of all teams in the Agriculture, Foresty and Related Industries program area.

2. Brief description of the target audience

Poultry industry personnel and growers, forestry and wildlife professionals, landowners, homeowners

Commercial horticulture program: Large fruit and vegetable producers, small and low resource farmers (underserved communities), beginning farmers, gardeners, industry personnel, crop advisors, state and federal agency personnel, community leaders, nonprofit agencies and related personnel, landscape and nursery professionals.

Farm Management and Agricultural Enterpise Analysis: All commercial producers of crops and livestock, landowners, agribusinesses, as well as small and hobby producers.

3. How was eXtension used?

eXtension materials were utilized for programming

Commercial horticulture program used eXtension for the fire ant and organic vegetable production initiatives.

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	26324	159726	5866	600

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

Patent Applications Submitted

Year:	2012
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	184	20	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Vegetable IPM training for producers

Year	Actual
2012	41

Output #2

Output Measure

- In-state fruit, vegetable, greenhouse, and nursery educational meetings

Year	Actual
2012	141

Output #3

Output Measure

- On-farm demonstrations in fruit and vegetable pest management, new cultivar evaluations, and cultural practices

Year	Actual
2012	55

Output #4

Output Measure

- Backyard vegetable production for Master Gardeners and Extension educators

Year	Actual
2012	31

Output #5

Output Measure

- Large conference for fruit and vegetable producers, large and small (organic) producers

Year	Actual
2012	3

Output #6

Output Measure

- On-farm consulting to commercial fruit and vegetable producers by Extension Agents and Specialists

Year	Actual
2012	400

Output #7

Output Measure

- Total number of participants reached by the Commercial Horticulture Extension programs

Year	Actual
2012	9720

Output #8

Output Measure

- Hours of commercial horticulture training provided to participants by Regional Extension Agents (243 events total)

Year	Actual
2012	972

Output #9

Output Measure

- Number of commercial horticulture reactive programs (need based, short-term impacts)

Year	Actual
2012	70

Output #10

Output Measure

- Number of phone calls taken by the Regional Extension Agents that required action

Year	Actual
2012	19805

Output #11

Output Measure

- Number of cleint emails asnwered by Regional Extension Agents in Commercial Horticulture

Year	Actual
2012	20970

Output #12

Output Measure

- Total number of farmers and gardeners on Commercial Horticulture REA list

Year	Actual
2012	1015

Output #13

Output Measure

- Number of subscribers to the Alabama IPM Communicator Newsletter (farmers, gardeners, industry and extension personnel, teachers, and community leaders)

Year	Actual
2012	1323

Output #14

Output Measure

- Total number of Extension publication for fruit and vegetable producers(public service announcements, newspaper and magazine articles, Extension bulletins, newsletters, Timely Information factsheets, websites)

Year	Actual
2012	122

Output #15

Output Measure

- In-state wild pig workshops

Year	Actual
2012	13

Output #16

Output Measure

- Attendees at wild pig workshops

Year	Actual
2012	610

Output #17

Output Measure

- Phone calls related to wild pig issues

Year	Actual
2012	75

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increase in active, viable county forestry and wildlife committees.
2	Outcomes and Impacts of Commercial Horticulture Programs

Outcome #1

1. Outcome Measures

Increase in active, viable county forestry and wildlife committees.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Forestry, Wildlife, Natural Resources Planning committees in each county are the "life-blood" of natural resource management in Alabama. These committees are composed of appropriate agency personnel and private landowners. Extension agents, both REAs and CECs, typically assume a leadership role in keeping these committees active and current.

What has been done
Meetings with the AFC County Foresters, Master Gardeners Associations , CEC?s, active Natural Resources Councils, government agency personnel, Farm Services, Natural Resources Conservation Service, and the Alabama Forestry Commission to revitalize inactive County Planning Committees. In counties where active committees already existed, worked with these groups to help provide leadership and experience in program implementation.

Results
Met with active Natural Resources Councils to develop youth education, cogongrass awareness, and hazard tree assessment programs. In some instances a simple post-event survey was used to evaluate programs. The survey items were designed to determine if respondents gained knowledge and if they would recommend the program to colleagues or others needing information on the subject matter. All respondents for each program answered yes to both questions. The results were used in success stories for each of these programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
124	Urban Forestry

125	Agroforestry
134	Outdoor Recreation
135	Aquatic and Terrestrial Wildlife
205	Plant Management Systems
307	Animal Management Systems

Outcome #2

1. Outcome Measures

Outcomes and Impacts of Commercial Horticulture Programs

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Commercial Horticulture program encompassing fruit and vegetable production, nursery and landscape industry is the fastest growing agriculture sector with total economic value of $611 million approximately. Constant improvement and training in crop production practices is necessary to maintain the industry.

What has been done
Extension training events: 63 fruit meetings, 71 vegetable production meetings, 7 events for large nursery/landscape professionals, pesticide safety, and gardeners. 55 demonstration plots. 70 reactive programs. Over 400 on site visits by REAs to farms. 19800 phone calls and over 20,000 emails were answered. Extension news releases exceeded 122 statewide.

Results
Specific impact examples: 65% peach producers that participated in the 2011 regional peach meeting in Clanton used new cultivars in 2012 and followed production recommendations resulting in an economic impact estimated to be about $3.9 million. The vegetable IPM program, with its large outreach campaign via regional meetings, field days, and numerous publications, has an economic impact estimated to be about $1.9 million statewide. The long-term effect of the pecan program has also led to near doubling of production and exports of Alabama pecans generating over $31 million in revenue.. Overall, it is estimated that the overall impact of the ACES Commercial Horticulture Team exceeds $12 million.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

By their very nature, Agriculture, Forestry, and Related Industries are subject to natural disasters; these programs are often held out-of-doors. Natural disasters may impact the FWNR programs (e.g., The Forestry Field Day) or the actual topic being addressed (e.g., timber harvest). The economy has affected programming for several years and continues to do so, people simply don't have the financial resources to invest in these activities.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The concerted effort by Extension workers to monitor the spread of Asian Soybean Rust also had a significant economic benefit. Early warnings of the presence of this disease along the Gulf Coast where the disease first appeared resulted in farmers using Extension-recommended fungicides to protect almost all of the 12,000 soybean acres in Baldwin county. Comparison of yields in fungicide-treated plots with untreated plots at the Fairhope research station showed that ASR reduced yields by 40%. Comparison of yields on two farms where ASR fungicides were not applied with neighbor's yields that used ASR fungicides showed ASR reduced yields from 70 to 40 bushels per acre. If an average ASR yield reduction of 25 bushels per acre in Baldwin county is used and 11,000 acres avoided this yield loss by applying fungicides, the total value of the saved soybeans at $15 per bushel equals $4,125,000. This is only a small component of the total savings since the disease reduced yields by 25% in double-cropped soybeans as far north as the EV Smith research Station at Tallassee. Cotton farmers learned that some cotton varieties were more susceptible to yield losses to Target spot disease than others.

Evaluation of services provided to clients of the Auburn Plant Diagnostic Lab includes a 1% clientele survey of business, commodity, planting size, cost benefits, satisfaction with service, and impacts on pest management program. The average cost benefit of service from the lab to agronomic crop growers in 2012 was $24,125 and 100% indicated they did change their pest management program based on the identification and control recommendations provided by the lab.

- A corn disease control test demonstrated an increased yield of 17.6 bushels that increased profit per acre by $105.82.
- A chicken litter / soybean trial increased profit per acre by $138.95.
- Increase in the use of variable-rate technology in Alabama has reduced over-application of nutrients on average by 7% thereby enhancing environmental stewardship.

• The use of guidance systems and automatic section control during nutrient application has been able increase this estimate to over 10%.

• Overall, the adoption of PA technologies by 2012 Alabama growers continues to provide savings of over $25,000,000 on inputs reducing their economic risks.

• Based on recent Alabama survey data from farmers, the use of precision ag technologies has improved farm workers quality of life allowing them to work over longer periods with less fatigue.

• In 2010 and 2011 Cotoran herbicide could not be used in five northern Alabama counties because of ground water concerns. After two years of communications and meetings with EPA and the US Geological Survey, EPA approved a label for these five counties to again use Cotoran herbicide on cotton. This allowed these Alabama farmers to have a much needed herbicide to fight pigweed resistance in approximately 40,000 acres of cotton fields in 2012. This herbicide's activity on pigweed could delay resistance by several years. Since resistance control often increases herbicide costs by $50 per acre, this action could save these farmers $2,000,000 each year resistance is delayed.

• A survey of 27 northern Alabama chemical distributor, chemical sale representatives and crop consultants was conducted in 2012. This survey was meant to gauge how farmers were changing herbicide practices in response to Extension programs concerning glyphosate weed resistance. It will also be used plan future Extension programs. Overall, Auburn Extension efforts on weed resistance received a rating of 3.9(out of 5.0) for our programs. Increased use of herbicides with soil residual control is one method used to reduce the occurrence of resistant weeds. According to the survey farmers in northern Alabama have increased use of residual herbicides in corn by 14%, in cotton 46% and in soybeans by 31% in the last year. One consultant commented "Weed resistance is spreading much slower in Alabama than it had in other states". He thought this was due in part due to the pro-active efforts of Extension in informing farmers about glyphosate resistant weeds.

• During the soybean looper outbreak in soybeans Extension educational efforts allowed growers to save an average of $4 per acre by using the most cost-effective, Extension-recommended chemical and the savings total by the farmers who used this product was $528,000. Yield losses in the absence of timely insecticide treatments for loopers could have easily averaged 4 bushels per acre on 165,000 treated acres which valued at $15 per bushel equals a prevented loss of $9,900,000.

COMMERCIAL HORTICULTURE OUTCOMES/IMPACTS

• Commercial horticulture training programs reached over 9,720 participants through special events, publications, and field training. Commercial Horticulture REAs and Extension Specialists are highly trained in program evaluation and collected feedback for monitoring impacts of various projects. Based on multiple surveys conducted in 2012, training audience included 4% new or beginning farmers, 34% conventional producers, 34% naturally grown producers, 10% crop consultants, 3% industry partners, 4% urban farms, 7% gardeners, and 4% USDA-NRCS field officials.

• The Southeastern U.S. Vegetable Production Handbook, which is provided free of cost to all producers, is used by over 80% of recipients along with the timely information posted on county Extension websites, magazines, newspapers, and newsletters. The direct impact of Alabama IPM newsletter was $6,175 from 18 cases ($343 per respondent).

• Short-term IPM adoption rate after reading the newsletter is about 52%. Nearly 45% subscribers to the IPM newsletter attended at least one educational event after reading about it. Change in knowledge after training or consultation ranges from 25% to 50% overall. Producers surveyed indicated potential yield loss of 50% or more in the absence of an integrated pest management plan (certain crops can be affected 100% without timely pest control). The vegetable IPM project has resulted in increased adoption of certain

environment-friendly insect control tactics on large acres across Alabama, e.g., use of selective insecticides, correct application of biopesticides, and trap crops that can provide over 70% insect control with 80% reduction in synthetic insecticide usage for medium-scale farms. The vegetable IPM program, with its large outreach campaign via regional meetings, field days, and numerous publications, has an economic impact estimated to be about $1.9 million statewide.

- Adoption rate for systems-based cultural practices varies between crops, for example, 65% peach producers that participated in the 2011 regional peach meeting in Clanton used new cultivars in 2012 and followed production recommendations resulting in an economic impact estimated to be about $3.9 million.
- The pecan cultivar improvement project has led to 100% Alabama nurserymen to grow scab resistant varieties. The long-term effect of the pecan program has also led to near doubling of production and exports of Alabama pecans generating over $31 million in revenue.
- Special reactive program impacts: Apple producers in north Alabama saved about $30,000 by working closely with REA for disease management issues. Use of the recommendations published in bulletins saved about $30,000 for many small producers in the Tennessee Valley region of north Alabama. Another REA in southeast AL helped a 30-acre watermelon producer save a $30,000 crop by developing a disease management plan for the producer. One tomato producer saved over $12,000 by controlling spider mites according Extension recommendations. In another instance, a peach producer in Jackson County stopped his expansion for his orchard after consulting an REA since the nursery plants had nematodes that would have ruined the producer in a few years; this would have resulted in over $50,000 loss for the farmer. Several REAs also assist producers with marketing of produce via the MarketMaker project and offer food safety training that have benefited at least 5 to 6 markets - some located in underserved communities in north western and central Alabama. There are numerous other instances where ACES provided valuable service to commercial producers and we continue to evaluate their direct impacts. More impact stories are available at https://ssl.acesag.auburn.edu/etp/eval_public_view.php?id=512eb2ce8a016
- Impacts of the organic vegetable production initiative will be assessed more clearly in 2013 and reported in future. Overall, it is estimated that the overall impact of the ACES Commercial Horticulture Team exceeds $12 million (entire fruit and vegetable industry is valued over $50 million; greenhouse, nursery, and floriculture industry is valued at over $561 million). This is a strong indicator of growing importance of this Extension Team in Alabama's future.
- The FWNR program will be implementing a standard evaluation model for 2013; thereby, allowing the comparison of different programs on such variables as workshop quality, knowledge gained, acreage impacted, and economic impact.

Key Items of Evaluation