

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Plant Production

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	20%	0%	20%	0%
204	Plant Product Quality and Utility (Preharvest)	35%	0%	35%	50%
205	Plant Management Systems	15%	0%	15%	50%
213	Weeds Affecting Plants	15%	0%	15%	0%
216	Integrated Pest Management Systems	15%	0%	15%	0%
	Total	100%	0%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	5.5	0.0	5.0	0.0
Actual Paid	22.5	0.0	26.5	2.0
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
2608462	0	2819197	272388
1862 Matching	1890 Matching	1862 Matching	1890 Matching
2608462	0	2819197	272388
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

Plant Production research and studies were conducted. County, regional, state, and multistate meetings, trainings, and workshops were held. Field days, on-site visits, tours, and hands-on sessions took place. Diagnostic services were provided.

Research findings and information were shared via bulletins, newsletters, eXtension, lay-person articles, industry publications, peer-reviewed journals, scientific proceedings, state and national conferences, broadcast media, websites, expos, and trade magazines.

Native plant propagation

Plants have been supplied to private, state, and federal agencies for reintroduction projects.

Vegetables

Research is currently underway assessing rotations for organic winter vegetable production.

One project provided information on how plastic mulches affect tomato, bell pepper, and onion yield and quality.

Research continued on the design productive and sustainable vegetable production systems by using plasticulture techniques.

Research continued on developing integrated approaches for managing vegetable diseases. An emphasis was on developing management approaches integrating foliar applied products and soil treatments applied through drip tube.

The commercial vegetable pest control handbook for Georgia was updated and published.

Fruits and berries

Various fungicides were evaluated.

Research continued in the area of mechanical harvesting efficiency in blueberries and nematicidal compounds.

A new nematicidal compound was released this year. Additional studies were begun to examine the efficacy of a new nematicidal compound on blueberry.

Peanuts

Several on farm trials were conducted this year which demonstrated the benefits of new cultivars, night spraying fungicides, and the peanut RX program for reducing fungicide inputs.

Research was conducted to determine the response of new cultivars and breeding lines to management tools such as optimum planting date, row pattern, tillage system, insecticide treatment.

Pecans

Research continued on pecan selections for nut quality, tree vigor, tree productivity and pest resistance. A telephone "hotline" is updated weekly to provide real time information to growers who can call in anytime.

Pecan scab fungicide resistance monitoring program was conducted. More than 150 leaf scab samples were tested for sensitivity to six different fungicides.

A new Southeastern Pecan Growers Handbook was produced.

Row crops

Information developed in these studies has been incorporated into crop production guides.

A substantial amount of sequence has been generated from the chromosome associated with apomixis. Other candidate genes are being examined.

Medicinal, nutraceutical and biofuel plant species were studied.

Forestry

Research and extension programs in insect pest management were carried out. Researchers increased invasive species work.

The LIFE program conducted resource clinics and 2 publications on estate planning were distributed.

Exhibits were also present in seven black belt counties.

2. Brief description of the target audience

The primary target audiences are county extension agents, growers, industry representatives, consultants, contractors, media, regulatory and policy representatives, community leaders.

3. How was eXtension used?

There are currently 13 leaders and 62 active members associated Communities of Practice related to this planned program.

The membership in eXtension has continued to grow. Overall, there are currently 291 members in Communities of Practice in 62 approved communities (Up from 150 members in 59 communities in 2012). 190 questions were answered by in-state experts.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	2418	1905	150	330

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

Patent Applications Submitted

Year: 2014
 Actual: 8

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	62	103	165

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational contact hours generated from formal educational programs presented directly to clientele by state faculty directly associated with this planned program.

Year	Actual
2014	0

Output #2

Output Measure

- Number of educational contact hours generated from formal educational programs presented directly to clientele by state faculty directly associated with this planned program.

Year	Actual
2014	0

Output #3

Output Measure

- Number of invited presentations by faculty directly resulting from the success of this planned program.

Year	Actual
2014	69

Output #4

Output Measure

- Number of significant publications including articles, bulletins and extension publications.

Year	Actual
2014	58

Output #5

Output Measure

- Number of educational contact hours generated from formal educational programs presented to county extension agents by state faculty directly associated with this planned program.

Year	Actual
2014	1010

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of additional direct extension contacts made by volunteers, staff, or county agents not receiving federal funds as a direct outcome of the work of federally funded faculty associated with this planned program.

Outcome #1

1. Outcome Measures

Number of additional direct extension contacts made by volunteers, staff, or county agents not receiving federal funds as a direct outcome of the work of federally funded faculty associated with this planned program.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	719901

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Faculty associated with federal funds also make indirect contacts to clientele. These federally funded positions provide further impact to the community through county faculty, staff and volunteers not receiving federal funds. This county level programming results in thousands of additional direct Extension contacts.

What has been done

County faculty have presented research based information directly to clientele through presentations, workshops, on-site visits, meetings, and other trainings.

Results

Extension extended lifelong learning to the people of Georgia through unbiased, research-based education.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems

213	Weeds Affecting Plants
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

- Rainfall was sometimes low, and as a result, disease was often decreased substantially.
- In vegetable production research, field work is always subject to the effects of natural disasters such as weather extremes, pests, and diseases. The outcomes of the program may also be influenced by the economy, which may affect the budget for research in the CAES and level of technical and clerical support. The economy and public policy may also determine the availability of extramural funding.
- Continued reductions in state funding have limited the number of research trials installed.
- Farm Bill past mid-year still effecting targeted audience; rebounding housing market still affecting prices as well as financial institutions lending practices; weather is still a constant factor.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

- Weekly meetings of the Plant Conservation Program staff of the State Botanical Garden have provided the venue for evaluating the program. Changes to the program were made based evaluation results.
- Blueberry producers now have a substantive management recommendation for control of Exobasidium, an emerging disease. Yields were increased and consumer complaints were minimized as a result of this research.
- Growers are adapting reduced fungicide programs and using Peanut RX programs and night sprays.
- Incidence of tomato spotted wilt in peanut was determined by counting the number of 1 ft portions of row severely affected by tomato spotted wilt, and calculating a percentage

of the plot affected based on total row length within the plot.

- In all field trials conducted, injury to over 10 blueberry varieties did not exceed 20% with labeled rates, and tended to be transient. Postemergent control of sedges with halosulfuron exceeded 80% during the first 8 weeks after application.
- Reduced sensitivity of the yellow aphid complex to the most commonly used insecticide, imidacloprid, was widely reported and documented in most pecan growing areas.
- Growth regulators that induce fruit abscission in blueberry have been identified. The physiology of fruit detachment and the point of fruit detachment are better understood in blueberry. Specific changes in the cell wall glycome associated with the abscission induced by these growth regulators have been identified. Multiple genes associated with the process of abscission have been identified. The site of action of the growth regulators have been defined. A portable mechanical shaker has been developed.
- The level of disease suppression in downy mildew and powdery mildew of cucurbits obtained through the use of fungicide programs is excellent at this time. The amount of disease suppression of bacterial leaf spot of pepper and Botrytis neck rot of onion is not adequate.
- We have developed molecular tools to isolate and characterize PR genes and resistance gene homologues (RHGs). We have characterized these genes to better understand defense mechanisms.
- County agents have indicated grower satisfaction with current educational programs and have requested similar programs for 2015.
- Workshop participants evaluated on the usefulness of the LIFE session topics such as timber management, estate planning, wildlife, and USDA cost-share programs in which the finding indicate the LIFE program is very beneficial to its targeted audience. Most knowledge gain in most cases was greater than 40 percent.
- We have developed techniques based on the inoculation of female watermelon blossoms (stigmas or ovaries), to generate A.
- The workshops were well attended (300 people total for all 3 workshops). Subsequent communication with pecan producers indicates that many growers implemented fruit thinning as a practice for the first time in their pecan farming operations.
- A recent survey shows that the percentage of pecan growers in Georgia now utilizing clover to supplement their trees' nitrogen needs has risen by over 40% over the last three years.

Key Items of Evaluation

Workshops were well received and showed an overall increase in knowledge and satisfaction with the programs.

Analysis and techniques taught improved product quality and value.
New breeds were developed.