

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Climate Change

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%		
111	Conservation and Efficient Use of Water	10%	0%		
112	Watershed Protection and Management	5%	0%		
125	Agroforestry	5%	0%		
132	Weather and Climate	20%	0%		
205	Plant Management Systems	10%	0%		
211	Insects, Mites, and Other Arthropods Affecting Plants	15%	0%		
212	Pathogens and Nematodes Affecting Plants	15%	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	0.4	0.0	0.0	0.0
Actual Paid	1.0	0.0	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
10587	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
20151	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
108418	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Two climate-related workshops were organized (ACES was part of the organizing committee) with the goals of increasing knowledge on climate science, potential adaptation strategies to cope with climate variability and change, and the use of web-based decision support tools. The first workshop and technical session was offered as part of the program of the 2014 National Agricultural County Agricultural Agents meeting (120 attendees to the climate session) and the second event was the 2014 Southern Region Extension Climate Academy (SRECA) with participation of 104 extension specialists and agents from 15 universities across the Southeast; Two multi-state meetings with the Tri-state row crops climate working group discussed "Sesame, a crop with high potential to Mitigate Climate Risk?", "the potential of drones for agriculture", "cover crop" and "the use of APPS to better manage irrigation". A two-day corn and wheat short course was organized and included almost 16 presentations by speakers from the Southeast and Mid-west universities. The presentations were focused on management strategies that can help farmers increasing resilience and the efficiency on the use of inputs. Climate education and information were transferred through the preparation of extension publications. Three extension publication were prepared and distributed through internet and during meetings (Extension publication titles were: Adapting Corn Production to climate in the Southeast, Adapting Wheat Production to climate in the Southeast, El Niño-Southern Oscillation and its Impact on Alabama's Climate). Twelve climate related presentations and two posters were delivered/prepared at state, regional, and national meetings. A poster was prepared for the Third International Climate Change Adaptation Conference. Fortaleza, Brazil. 12-16 May, 2014.

2. Brief description of the target audience

The activities of the Climate Change Program Priority Team reached the following groups of stakeholders: 1) row crop and fruit-vegetable producers and their representatives groups that include, but are not limited to, the Alabama Cotton Commission, Alabama Peanut Commission, Alabama Soybean Producers, and Alabama Wheat and Feed Grains Committee; 2) row crop, forage, livestock, fruit vegetable advisors including ACES agents and specialists, ACES county coordinators, ACES risk preparedness specialists, public and private crops advisors; 3) governmental agency personnel including USDA, NRCS, and State of Alabama Soil and Water Conservation Committee; and 4) private citizens impacted by policies and practices used for the production of food, fuel, and fiber. All educational programming efforts targeted audiences without exclusion or discrimination, as specifically defined by ACES policy guidelines.

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	1130	17326	200	500

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	4	2	6

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- - Distribution of basic information about climate variability and climate change not only for Alabama but also for the Southeast. Most of the information will be related to differences between climate variability and change, maps of the average spatial variability of the most important climatic variables (e.g., rainfall and temperature), forecasts provided by US official weather service (NOAA). Several methods of notification (email-Timely Information Sheets, articles in popular press, climate variability/ climate change web site specifically designed for the program, etc) will be used to disseminate information. - Specific outputs include: 1) News and current information posted on the Climate web site as well as agronomic crops web site (www.alabamacrops.com).
 Not reporting on this Output for this Annual Report

Output #2

Output Measure

- - Meetings, in-service trainings, and workshops, will include information on the relationships between agriculture/natural resources and climate change as well as potential impacts,

relationships between pest/diseases changes in relation to climate variability and climate change. - Specific outputs include: 1) Multi-state conferences on climate change and the implications for agriculture and natural resources, 2) In-service training meetings for target audiences (e.g., row crops producers, fruit and vegetable producers, soils and water conservationists, etc).

Not reporting on this Output for this Annual Report

Output #3

Output Measure

- - Reports based on reviews of current knowledge about the relationships between agriculture and climate change and potential impacts.

Not reporting on this Output for this Annual Report

Output #4

Output Measure

- - Recommendations for adaptation strategies for row crops/fruit and vegetables will be development to reduce the risks of climate variability and climate change. - Specific outputs include: a) Guidelines for agronomic management under various climate variability and climate change scenarios and b) Hard copy publications for use in production meetings and trainings where deemed appropriated.

Not reporting on this Output for this Annual Report

Output #5

Output Measure

- Number of publications

Year	Actual
2014	7

Output #6

Output Measure

- Number of meetings, in-service trainings and workshops

Year	Actual
2014	13

Output #7

Output Measure

- Number of publications about the relationships between agriculture and climate change and potential impacts

Year	Actual
2014	1

Output #8

Output Measure

- Number of publications about adaptation strategies for row crops/fruit and vegetables

Year	Actual
2014	2

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Members of the ACES Climate Change team will be required to provide a success story on an annual basis describing the program activity which they felt best demonstrated the impacts of their work. These success stories contain the following elements: a) why the program was conducted or the situation/problem that was addressed; b) specifically what and how it was done; c) the time period involved; d) the specific locations involved; e) who was impacted; f) how many people were served; and g) the final impacts. Short-term outcome: The most immediate outcomes are: 1) Increased understanding of the potential impacts of climate variability and climate change on row crops, fruits and vegetables;
2	2) Increased information about the impact of ENSO phases on row crops, fruits and vegetables;
3	3) Alabama stakeholders trained/educated in climate variability and climate change topics;
4	4) Alabama growers, extension agents and extension specialists trained in using agroclimatic decision support tools
5	5) Capacities strengthened for integrating climate change risks and opportunities into state and regional development assistance
6	6) Capacities strengthened to access and use resources effectively to reduce risks associated with climate variability and climate change
7	7) Capacities strengthened to understand and manage water or natural resources in the context of climate vulnerability
8	8) Identification of the most profitable row crops management practices by ENSO phase
9	9) Identification of adaptation strategies to reduce climate change impacts.
10	10) increased awareness of the impacts of climate on agricultural Production.
11	Medium-term outcomes: The medium-term outcomes of the Climate Change Extension Program are: 1) implementation of a new system of management practices for row crops and vegetables according to ENSO phase
12	2) Improved agronomic management row crops and vegetables
13	Long-term outcomes: The long-term outcomes of the Climate Change Extension Program are: 1) increased profitability of Alabama growers
14	2) improved soil conditions
15	3) reduced environmental impacts

16	4) competitive Auburn and ACES Agronomic Research, Extension and Education system.
17	Dollar amount saved by a producer adopting recommendations from climate related support tools
18	Number of publications about the impact of ENSO phases on row crops, fruits and vegetables
19	Percent change in knowledge of attendees about cause of climate change
20	Percent Increased knowledge of management practices available to cope with climate-related changes
21	Capacities strengthened for integrating climate change risks and opportunities into state and regional development assistance
22	Number of individuals who increased knowledge of improved agronomic management of row crops and vegetables related to climate variability
23	Number of participants who adopted improved management practices to deal with climate variability

Outcome #1

1. Outcome Measures

Members of the ACES Climate Change team will be required to provide a success story on an annual basis describing the program activity which they felt best demonstrated the impacts of their work. These success stories contain the following elements: a) why the program was conducted or the situation/problem that was addressed; b) specifically what and how it was done; c) the time period involved; d) the specific locations involved; e) who was impacted; f) how many people were served; and g) the final impacts. Short-term outcome: The most immediate outcomes are: 1) Increased understanding of the potential impacts of climate variability and climate change on row crops, fruits and vegetables;

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

2) Increased information about the impact of ENSO phases on row crops, fruits and vegetables;

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

3) Alabama stakeholders trained/educated in climate variability and climate change topics;

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

4) Alabama growers, extension agents and extension specialists trained in using agroclimatic decision support tools

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

5) Capacities strengthened for integrating climate change risks and opportunities into state and regional development assistance

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

6) Capacities strengthened to access and use resources effectively to reduce risks associated with climate variability and climate change

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

7) Capacities strengthened to understand and manage water or natural resources in the context of climate vulnerability

Not Reporting on this Outcome Measure

Outcome #8

1. Outcome Measures

8) Identification of the most profitable row crops management practices by ENSO phase

Not Reporting on this Outcome Measure

Outcome #9

1. Outcome Measures

9) Identification of adaptation strategies to reduce climate change impacts.

Not Reporting on this Outcome Measure

Outcome #10

1. Outcome Measures

10) increased awareness of the impacts of climate on agricultural Production.

Not Reporting on this Outcome Measure

Outcome #11

1. Outcome Measures

Medium-term outcomes: The medium-term outcomes of the Climate Change Extension Program are: 1) implementation of a new system of management practices for row crops and vegetables according to ENSO phase

Not Reporting on this Outcome Measure

Outcome #12

1. Outcome Measures

2) Improved agronomic management row crops and vegetables

Not Reporting on this Outcome Measure

Outcome #13

1. Outcome Measures

Long-term outcomes: The long-term outcomes of the Climate Change Extension Program are: 1) increased profitability of Alabama growers

Not Reporting on this Outcome Measure

Outcome #14

1. Outcome Measures

2) improved soil conditions

Not Reporting on this Outcome Measure

Outcome #15

1. Outcome Measures

3) reduced environmental impacts

Not Reporting on this Outcome Measure

Outcome #16

1. Outcome Measures

4) competitive Auburn and ACES Agronomic Research, Extension and Education system.

Not Reporting on this Outcome Measure

Outcome #17

1. Outcome Measures

Dollar amount saved by a producer adopting recommendations from climate related support tools

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	210000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Farmers that grow corn without irrigation perceive a very high risk of yield losses if drought conditions occur during the growing season. Adapting management strategies based on climate forecast has been proven useful risk management approaches. Because dryland corn relies on rainfall (amount and distribution), ambient temperature and solar radiation achieve high yields, extension agents are training farmers and crop consultants on how the climate forecast can be incorporated into their decision making process as well as training them on the use of climate-based decision support tools.

What has been done

Dryland corn farmers in Geneva County were informed of the climate forecast for the upcoming growing season. Some farmers were also introduced to the Planting Date Planner tool available in AgroClimate.com website. This tool combines crop growth modeling with the climate forecast and for the planting date options selected by the user, provides information on the probability of each planting date for achieving low, medium or high yields. The extension agronomist from ACES located in Geneva County, Brandon Dillard and William Birdsong, helped the farmers in the area, assess the risk associated with various planting date options under a specific climate forecast. These two agronomists have been training farmers and crop consultants on the use of this information as risk management tools.

Results

During this reporting year, farmers Scott and Jeff Gray from Samson, Alabama inquired about the Planting Date Planner tool available in AgroClimate.com website (Southeast Climate consortium site) and the forecast for when was the best time to plant corn. Since these two brother's farm was 100 percent dryland, they were especially concerned about growing corn without irrigation. Because of such risk they wanted all the risk mitigation information that they could learn about. That is when they learned about the Tri-State Row Crops leaning group and the work that was being done with crop modeling and yield forecasting, such as the Planting Date Planner tool in AgroClimate.org. The yield forecast is impacted by the different ENSO phases such as La Niña and El Niño. The tool in AgroClimate projected that the best time to plant corn with the highest probability for high yield was mid-April for Geneva County, Alabama. After learning this, the Gray brothers delayed planting until the middle of April just as AgroClimate suggested. As it turned out the forecast was very accurate and the rains came in June during the pollination and kernel filling development stages and the Gray's dry land corn yielded 150 bushels per acre. They had

around 200 acres of corn and they had priced the corn at \$7.00 per bushel, therefore the corn crop was worth \$210,000.00. A difference situation occurred to a different farmer within the same. Another farmer who was told about the forecast to wait on planting did not give the forecast much credibility. He planted his 200 acres of corn in February around Valentine's day. This planting date was forecasted by the Planting Date Planner tool with the least probable chance of a achieving high yield. Unfortunately for the farmer, the forecast was completely correct that year and his corn experienced a disastrously dry May during the pollination and kernal fill stages. The yields were disastrous and the corn was rejected by the buyers because of Aflatoxin, which most likely occurred because of the lack of rainfall and hot dry conditions during the Silking period. The yield was around 40 bushels per acre and the corn was not marketable due to Aflatoxin, which resulted in a crop value of zero. These two contrasting stories exemplify the important of using climate-based decision support tools, the engagement our extension agents educating farmers on the understanding of our climate and the importance of climate forecast use. These two corn farms were only were only around 15 miles, the final result was completely different.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
132	Weather and Climate
205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants

Outcome #18

1. Outcome Measures

Number of publications about the impact of ENSO phases on row crops, fruits and vegetables

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Some wheat farmers are aware of yield losses associate to Hessian Fly infestation. Even though

entomologist knew the life cycle of Hessian Fly was altered by the weather and climatic conditions, that possible relation has not been addressed as well as the potential for using climate forecast to assess the risk for Hessian Fly and indirectly the risk for wheat yield losses.

What has been done

A research study was conducted to evaluate the relationship between ENSO (La Nina/El Nino phases) and Hessian Fly infestation as well as yield losses. The results of this study have been presented at various farmers and professional meetings (state, regional, and national). A draft of an extension document summarizing the results from this study was prepared and expected publication of it will be in 2015.

Results

The study showed strong relationship between high Hessian Fly infestation and warmer winter and spring season which are influenced by La Nina phase of ENSO. The study also identified the main weather parameters (and timing) driving this phenomenon.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #19

1. Outcome Measures

Percent change in knowledge of attendees about cause of climate change

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Development and implementation of extension programs focused on climate variability and climate change could increase if extension professionals have a better understanding of causes of climate change, people's perceptions towards climate change, barriers communicating climate

change, and current weather changes associate to climate change.

What has been done

A regional training was developed by a group of extension faculty from Auburn University/ACES, UFL, and UGA, Southeast Regional Extension Academy, with the goal of training extension faculty and extension agents on climate change/climate variability topics. 104 participants from 15 states across the Southeast participated in a 2 ½ day training.

Results

Pre and post workshop survey was conducted to assess change in perceptions and knowledge. Data from the survey showed that respondents who answered that climate change is occurring but we don't know its cause and that there is insufficient evidence to know with certainty whether climate change is occurring decreased from 22% to less than 7% of the group.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
132	Weather and Climate

Outcome #20

1. Outcome Measures

Percent Increased knowledge of management practices available to cope with climate-related changes

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	13

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Development and implementation of extension programs focused on climate variability and climate change could increase if extension professionals have a better understanding of causes of climate change, people's perceptions towards climate change, barriers communicating climate

change, and current weather changes associate to climate change, and adaptation strategies.

What has been done

A regional training was developed by a group of extension faculty from Auburn University/ACES, UFL, and UGA, Southeast Regional Extension Academy, with the goal of training extension faculty and extension agents on climate change/climate variability topics. 104 participants from 15 states across the Southeast participated in a 2 ½ day training.

Results

Pre and post workshop survey was conducted to assess change in perceptions and knowledge. Data from the survey showed that respondents who answered on their knowledge of specific management options to help clientele cope with climate-related changes increased from decreased from 29% to 42% of the group.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
132	Weather and Climate
205	Plant Management Systems

Outcome #21

1. Outcome Measures

Capacities strengthened for integrating climate change risks and opportunities into state and regional development assistance

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	30

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Extension personnel and crop consultants will be better prepared if they have supporting teaching materials, and they have also received training

What has been done

Presentations, in-service trainings, short courses, preparation of extension bulletins

Results

An Extension agent in South Alabama and a Cotton Extension agronomist in Southeast Alabama are now conducting climate-related presentations during farmers meetings. They are also conducting demonstrations on the use of the tools on Agroclimate.org. Extension specialists have included topics related to ENSO and its relation with pest, diseases, and yield during their meetings with farmers. The number of farmers, extension agents, and extension specialists requesting information about the climate forecast for upcoming growing seasons and information on adaptation strategies is increasing every year.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
132	Weather and Climate
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #22

1. Outcome Measures

Number of individuals who increased knowledge of improved agronomic management of row crops and vegetables related to climate variability

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	96

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Row crops yield can be increased as well as input use efficiency by adopting the right management practices for the right place, right time, and using the right product. Awareness of the most effective management practices can be raised by providing farmers, crop consultants and extension agents with information on the most recent findings by extension specialists working at various universities across the Southeast and Midwest.

What has been done

A corn and wheat management short course was organized. The 2 day short course had 15 speakers (specialists working at various universities across the Southeast and Midwest) addressing topics of nutrient management, pest and diseases management, grain marketing, increasing yield by changing planting density, irrigation management, conservation tillage.

Results

A survey was conducted at the end of the corn and wheat management short course. The survey revealed that 96% of the participants (n=33) increased knowledge in corn planting density and planting date, prices and market, soil health, nitrogen management, nitrogen placement, irrigation. 25% of the people will adopt or use some of the management strategies discussed during the course.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #23

1. Outcome Measures

Number of participants who adopted improved management practices to deal with climate variability

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Row crops yield can be increased as well as input use efficiency by adopting the right management practices for the right place, right time, and using the right product. Awareness of the most effective management practices can be raised by providing farmers, crop consultants and extension agents with information on the most recent findings by extension specialists working at various universities across the Southeast and Midwest.

What has been done

A corn and wheat management short course was organized. The 2 day short course had 15 speakers (specialists working at various universities across the Southeast and Midwest) addressing topics of nutrient management, pest and diseases management, grain marketing, increasing yield by changing planting density, irrigation management, conservation tillage.

Results

The survey conducted at the end of the short course revealed that 96% From 33 people that reply that a survey conducted at the end of the event, 96% of respondents adopted improved management practices dealing with climate variability, corn planting density and planting date, prices and market, soil health, nitrogen management, nitrogen placement, irrigation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
132	Weather and Climate
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants

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)

Evaluation Results

- Most of the activities conducted in 2014 were focused on presentations and workshop. -A survey conducted at the end of a short course revealed that 96% of the participants increased knowledge in corn planting density and planting date, prices and market, soil health, nitrogen management, nitrogen placement, irrigation. 25% of the participants will adopt or use some of the management strategies discussed during the course. -Participants of the Southeast Regional Extension Academy indicated on a survey that respondents who answered that "climate change is occurring but we don't know its cause" and that there is "insufficient evidence to know with certainty whether climate change is occurring" decreased from 22% to less than 7% of the group. In addition, the same survey showed that respondents who answered on their knowledge of "specific management options to help clientele cope with climate-related changes increased from 29% to 42% of the group - The number of phone call with climate -related questions as well as the request for presentations with climate -related topics has increased a 30%. Requests for information about current and expected climate forecast, interpretation of the forecast and potential implications on row crops have increased considerably. The number of visits to the Climate Extension website (www.aces.edu/climate) increased from 5936 in 2013 to 13,000 in 2014.

Key Items of Evaluation

The number of hits on the ACES climate extension website in 2014 was 3,219 and the number of page views increased 23% in respect to 2013. Farmers, crop consultants and extension personnel attending the 2014 corn and wheat short course gained knowledge (96%) on corn planting density and planting date, prices and market, soil health, nitrogen management, nitrogen placement, irrigation. The interest on climate information and climate education among farmers and extension personnel has increased by 40%. This is reflected in the number of phone calls, invitations to meetings, and requests for climate information. The interest for agronomic management strategies linked to climate forecast has increased 30% among farmers and extension personnel. Participants to the Southeast Regional Extension Academy who answered on their knowledge of "specific management options to help clientele cope with climate-related changes" increased from 29% to 42% at the end of the workshop. Their perception towards climate change also changed at the end of this workshop. Respondents of a survey who answered that "climate change is occurring but we don't know its cause" and that there is "insufficient evidence to know with certainty whether climate change is occurring" decreased from 22% to less than 7% of the group.