

V(A). Planned Program (Summary)

Program # 13

1. Name of the Planned Program

Crop and Forage Production Systems

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%	10%	0%
204	Plant Product Quality and Utility (Preharvest)	10%	10%	10%	0%
205	Plant Management Systems	20%	10%	20%	0%
211	Insects, Mites, and Other Arthropods Affecting Plants	0%	20%	0%	0%
212	Pathogens and Nematodes Affecting Plants	10%	20%	10%	0%
213	Weeds Affecting Plants	10%	20%	10%	0%
215	Biological Control of Pests Affecting Plants	10%	20%	10%	0%
216	Integrated Pest Management Systems	30%	0%	30%	0%
	Total	100%	100%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	75.0	5.0	85.0	0.0
Actual Paid Professional	49.5	4.0	110.7	0.0
Actual Volunteer	0.0	75.0	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
677796	241035	3167174	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
677796	136442	10102342	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
5561613	0	16908958	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

AgriLife Extension and AgriLife Research

Provide training and program materials to County Extension Agents to conduct educational programs at the county level. Technical assistance is provided to agents by specialists in the area of result demonstrations and applied research. Provide multi-county, regional and statewide educational programs via specialist faculty to various stakeholders. Coordinate and collaborate with state and federal agencies in crop and forage activities. Marker-assisted selection was utilized in plant breeding research to mitigate drought stress and to select for resistance to disease and pests. Multi-disciplinary research focused on sustainable cropping systems.

Cooperative Extension Program

Conducted educational programs
 Conducted subject matter workshops/field days/ tours
 Provided one-on-one technical assistance/consultations
 Conducted training programs
 Assisted clients with development of farm plans

2. Brief description of the target audience

AgriLife Extension and AgriLife Research

The target audience for this program consists of agricultural producers who produce food, fiber, and forages in the state. Specific focus is on those commodities listed in the program overview. In addition, these programs are interpreted to the urban public through various methods.

Cooperative Extension Program

Small farmers; limited resource farmers; family farmers and socially disadvantaged farmers.

3. How was eXtension used?

Agents and Specialist were able to download publications customized with PVAMU-CEP logo to share with Producers. Agents also direct producers to the eXtension website to search for information.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	34904	1503280	2609	0

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

Patent Applications Submitted

Year: 2013

Actual: 6

Patents listed

- * Tamnut OL06 Peanut
- * Cotton Alpha-Globulin Promoter for Seed-Specific Expression of Transgenes
- * Regulatory Element from a Sugarcane Proline Rich Protein and Uses Thereof
- * Discovery and Utilization of Sorghum Genes (MA5/MA6)
- * Intergeneric Hybrid Plants and Methods for Production Thereof
- * Axcella 2 Annual Ryegrass

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	1824	1824

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- # of group educational sessions conducted.

Year	Actual
2013	1972

Output #2

Output Measure

- # of research-related projects.

Year	Actual
2013	219

Output #3

Output Measure

- # of one-on-one technical assistance/consultations.

Year	Actual
2013	159

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	% of crop and forage producers that adopt or plan to adopt best management practices to improved quality and profitability.
2	% of crop and forage producers that report increased knowledge of best management practices to improve quality and profitability.
3	Cumulative economic benefit (in millions) of improved technology in crop industry.
4	# of new jobs supported by value-added impacts

Outcome #1

1. Outcome Measures

% of crop and forage producers that adopt or plan to adopt best management practices to improved quality and profitability.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	93

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Hay production is a necessity for the beef cow-calf operator, as it is an important ration that helps ranchers maintain their cow herd during the winter, and in times of forage shortage, such as drought.

What has been done

The Hay Production and Purchasing program is a one-day program focused on providing information on hay production and purchasing as well as feeding hay to livestock. Topics covered included: forage species and variety selection; forage quality (factors and testing); fertility management; weed management; establishment of warm season annual forages; hay storage and feeding.

Results

Participants in the Hay Production Program were surveyed on their intentions to adopt best management practices:

- * 81% of participants intend to test they hay for crude protein and energy
- * 86.7% intend to use a soil analysis to improve nutrient management
- * 93.3% intend to use recommended practices/technology to control weeds
- * 78.9% of participants intend to use recommended practices to reduce storage and feeding losses.

Participants anticipate a total economic benefit of \$22.44 per acre due to the knowledge gained at this program. The total anticipated economic impact for their individual operation (based on an average of 397 acres per respondent) was \$9,245 total. For Hay Production and Purchasing, survey results indicate a net promoter score of 88.9 %.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
216	Integrated Pest Management Systems

Outcome #2

1. Outcome Measures

% of crop and forage producers that report increased knowledge of best management practices to improve quality and profitability.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

AgriLife Extension and Research

Hay production is a necessity for the beef cow-calf operator, as it is an important ration that helps ranchers maintain their cow herd during the winter, and in times of forage shortage, such as drought.

Cooperative Extension Program

A major portion on the land resources held by Limited Resource producers is not in production and in many cases has been out of production for 10-30 years. This program will enable small-scale agricultural operators and commercial producers in rural and suburban areas to become more knowledgeable in effectively identifying and evaluating horticultural diversification strategies for risk mitigation and Improved economic sustainability based on total management goals and

optimal resource base use.

What has been done

AgriLife Extension and Research

The Hay Production and Purchasing program is a one-day program focused on providing information on hay production and purchasing as well as feeding hay to livestock. Topics covered included: forage species and variety selection; forage quality (factors and testing); fertility management; weed management; establishment of warm season annual forages; hay storage and feeding.

Cooperative Extension Program

The Cooperative Extension Program teamed with Researchers from CARC to conduct both on and off campus demonstrations on the use of grafted cucumbers. Extension conducted training on vegetables production to new farmer via a grant from WalMart emphasis was placed on High Tunnel production. Three workshops were conducted on High Tunnel Production of horticulture crops. Collaborate with Texas A&M University to conduct project on Strawberry Production.

Results

AgriLife Extension and Research

Attendees (27 out of 33 that responded to the survey) on average own 397 acres in Texas (located anywhere from Houston to East Texas). Overall participants increased their knowledge of hay production and purchasing on average by 100%.

Participants anticipate a total economic benefit of \$22.44 per acre due to the knowledge gained at this program. The total anticipated economic impact for their individual operation (based on an average of 397 acres per respondent) was \$9,245 total. For Hay Production and Purchasing, survey results indicate a net promoter score of 88.9 %.

Cooperative Extension Program

Field Demos were conducted in Waller, Ft Bend, Washington, Smith, and Bowie counties as well as on campus demo. Spring and Summer production were very high, in some cases as many as fifty marketable cucumbers per plant. Field demo had limited results due to poor site preparation and no irrigation. We found that plants must have water in order to maintain high product levels.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

Cumulative economic benefit (in millions) of improved technology in crop industry.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	544

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Upland cotton is economically the most important crop in the state of Texas, with annual sales of lint and seed exceeding \$2 billion. Due to the climate and its inherent environmental stress, cotton is planted on approximately 6 million acres annually. As the choice of variety is most important single decision that a producer can make relative to yield and quality of the crop, AgriLife Extension, collaborating with the cotton industry, farmers and seed companies, has established approximately 30 large scale replicated, on farm cotton variety trials across the cotton producing areas of the state to demonstrate new technology being released by cotton seed companies. These large scale RACE plots demonstrate the best varieties from the cotton breeding programs of all of the seed companies. The adoption of the superior varieties in Extension field trials was tracked by comparison to cotton classing data from the USDA cotton classing offices.

What has been done

Improved seed technology and variety testing efforts have led to significant improvements in both cotton lint quality and yields in the state. Since 2000, average yields per harvested acre have increased from 475 pounds to 669 pounds. Since 2011, more than 9,900 cotton producers across the state have participated in 183 educational meetings conducted by AgriLife Extension. More than 1,500 test plot trial reports have been distributed to producers, cotton gins and consultants via educational meetings, Web site downloads, CDs and DVDs since 2011.

Results

From 2000 to 2011, the cumulative benefit of improved technology and increased adoption by growers is estimated at \$544 million, which has helped growers to partially offset the sharp increases in production costs in recent years.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems

Outcome #4

1. Outcome Measures

of new jobs supported by value-added impacts

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	1470

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Upland cotton is economically the most important crop in the state of Texas, with annual sales of lint and seed exceeding \$2 billion. Due to the climate and its inherent environmental stress, cotton is planted on approximately 6 million acres annually. As the choice of variety is most important single decision that a producer can make relative to yield and quality of the crop, AgriLife Extension, collaborating with the cotton industry, farmers and seed companies, has established approximately 30 large scale replicated, on farm cotton variety trials across the cotton producing areas of the state to demonstrate new technology being released by cotton seed companies. These large scale RACE plots demonstrate the best varieties from the cotton breeding programs of all of the seed companies. The adoption of the superior varieties in Extension field trials was tracked by comparison to cotton classing data from the USDA cotton classing offices.

What has been done

Improved seed technology and variety testing efforts have led to significant improvements in both cotton lint quality and yields in the state. Since 2000, average yields per harvested acre have increased from 475 pounds to 669 pounds. Since 2011, more than 9,900 cotton producers across the state have participated in 183 educational meetings conducted by AgriLife Extension. More than 1,500 test plot trial reports have been distributed to producers, cotton gins and consultants via educational meetings, Web site downloads, CDs and DVDs since 2011.

Results

For the ginning sector, the annual gain associated with varietal improvements, testing, and education supports approximately 2,100 jobs annually at cotton gins in the state. The value-added impacts associated with ginning the additional production were estimated at \$156 million in 2011, which supports an additional 1,470 jobs in ginning support industries.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

AgriLife Extension and Research

No external factors to report.

Cooperative Extension Program

Small Scale Horticulture crop production is subject to natural disasters such as drought, insects, and diseases. CEP Extension will assist producers in migrating risk by providing risk management education to producers. Producers lack knowledge to be profitable in the high risk area of agriculture production.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

AgriLife Extension and Research

From 2000 to 2011, the cumulative benefit of improved technology and increased adoption by growers is estimated at \$544 million, which has helped growers to partially offset the sharp increases in production costs in recent years. For the ginning sector, the annual gain associated with varietal improvements, testing, and education supports approximately 2,100 jobs annually at cotton gins in the state. The value-added impacts associated with ginning the additional production were estimated at \$156 million in 2011, which supports an additional 1,470 jobs in ginning support industries.

Cooperative Extension Program

Agents conducted an initial participant survey to gauge producer's level of understanding and the likelihood of adoption of the information being presented. Each Participant was contacted using the enrollment list to follow up on their interest and adopting the information. Agents worked with one-on-one with those producers who were interested in adopting new practices. One-on-one evaluations were conducted to monitor progress of each producer and to determine economic impact. Agents will assist in marketing of produce and record net profit to the producer.

Key Items of Evaluation

AgriLife Extension and Research

The collaboration of Extension with private seed companies and cotton commodity groups in developing highly visible, large scale, replicated field trials, coupled with a variety of educational methods has been highly successful in getting growers to adopt the best cotton varieties with respect to yield and lint quality. This partnership coupled with traditional extension educational programming has resulted in over \$150 million/year in increased income to the farm community and an additional 3570 jobs associated with cotton ginning and industries associated with ginning.

Cooperative Extension Program

Number of producers adopting new practices and technology.
Number of producers reporting increased income or cost savings
Number of producers reporting increased understanding of subject matter