

V(A). Planned Program (Summary)

Program # 20

1. Name of the Planned Program

Sustainable Energy

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%		10%	
111	Conservation and Efficient Use of Water	10%		10%	
205	Plant Management Systems	50%		50%	
402	Engineering Systems and Equipment	30%		30%	
	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
Plan	1.0	0.0	1.0	0.0
Actual Paid Professional	1.5	0.0	3.5	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
6443	0	27407	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
6443	0	316625	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
55131	0	512734	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

AgriLife Extension

Agricultural producers and the energy industry have a keen interest in the role that agriculture will play in contributing to renewable energy for America, and are looking to AgriLife Extension to help define which second generation crops will fit this market and how they will be produced. Texas is a major livestock feeding state and faces a feed grain deficit at current production levels, making second generation crops the only practical feed stocks for bioenergy. AgriLife Extension has responded by applied and demonstrations of candidate oilseed and lignocellulosic feedstock crops; holding workshops and field days for agricultural producers, by meeting with commercial interests from the energy sector to interpret potential for a variety of plant based bioenergy options. As crop-based bioenergy other than the traditional ethanol from feed grains is still in its infancy, actual adoption of second generation bioenergy is limited. Research involved the development of cropping system BMPs, testing and development of novel dedicated oilseeds and lignocellulosic bioenergy crops, advanced plant breeding systems, micro- and macro-algae, logistics and conversion technologies. Our focus is on second generation oilseeds and lignocellulosic feed stocks rather than on corn, soybeans, and other crops that can be used for food and feed. Drought and salinity tolerance, adaptation to marginal growing conditions and wide hybridization are emphasized in research in order to increase adaptation and sustainability of alternative energy systems. Organic residuals at livestock production systems offer a concentrated source of feedstock for the bioenergy production. Demonstration of identification, selection, harvesting and transportation of quality organic residuals for entering bioenergy production is critical to ensuring a sufficient energy resource.

AgriLife Research

Research involves cropping systems, novel dedicated energy crops, advanced plant breeding systems, micro- and macro-algae, logistics and conversion technologies. Our focus is on lignocellulosic feedstock rather than on corn, soybeans, and other crops that can be used for food and feed. Drought tolerance and wide hybridization are emphasized in breeding research in order to increase adaptation and sustainability of alternative energy systems. Best management practices are needed to identify, collect, separate, transport and process these organic residuals. Development of best management practices will ensure to availability of quality organic residuals for entering bioenergy production.

2. Brief description of the target audience

The target audience includes traditional petroleum and natural gas energy companies, farmers, seed companies, start-up companies in bioenergy, electric generating companies, and the general public.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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	0	51	51

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- # of educational programs conducted
Not reporting on this Output for this Annual Report

Output #2

Output Measure

- # of research related projects.

Year	Actual
2012	12

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	# of people reporting knowledge gained through participation in educational activities.
2	# of people reporting a willingness to adopt practices through participation in educational programs.

Outcome #1

1. Outcome Measures

of people reporting knowledge gained through participation in educational activities.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

of people reporting a willingness to adopt practices through participation in educational programs.

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes

Brief Explanation

The factors listed above could have either positive or negative effects on the educational programs and research activities. The issue availability of water for agricultural irrigation and of climate change requires an inter-disciplinary response to development of practices and sharing of information. External factors affecting individual disciplinary fields can impact the ability to develop and deliver information on weather and climate change.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Participants in selected programming activities will be administered a Retrospective-Post Test immediately after an educational activity. The issue-based questions will record the knowledge/awareness of the participants before and after the activity. Case studies will be implemented to evaluate the effectiveness of specific educational programs at reaching their target audience.

Key Items of Evaluation

No additional findings to report.