

V(A). Planned Program (Summary)

Program # 5

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	25%	0%		
216	Integrated Pest Management Systems	20%	0%		
402	Engineering Systems and Equipment	15%	0%		
403	Waste Disposal, Recycling, and Reuse	10%	0%		
603	Market Economics	30%	0%		
	Total	100%	0%		

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	2.0	0.0	0.0	0.0
Actual Paid Professional	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
7451	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
22464	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
103125	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The project consisted of programs and demonstrations that 1) increased production of energy feedstocks (corn, soybeans, rapeseed, cottonseed, peanuts, wheat and biomass); 2) worked with municipalities to produce biodiesel from used cooking oil; 3) worked with entrepreneurs to develop renewable energy manufacturing plants; 4) worked with petroleum distributors, farmers and the general public to increase usage of renewable fuels; 5) worked on renewable energy opportunities including chicken litter to electricity; and 6) increased crop production fuel efficiency. A renewable program was conducted at National Association of County Agriculture Agents AM/PIC and Alabama Association of County Agriculture Agents and Specialists AM/PIC.

2. Brief description of the target audience

The activities of the sustainable Energy Program target the following groups of stakeholders 1) feedstock producers and their representative groups that include, but are not limited to, the Alabama Soybean Producers, the Alabama Wheat and Feed Grains Producers, the Alabama Soybean and Corn Association and the Alabama Forestry Association; 2) fleet managers; 3) energy entrepreneurs; 4) municipalities, county governments and other public organizations; 5) feedstock production advisors including ACES agents and specialist, public and private agronomy advisors; 6) public policy makers requesting energy information; 7) governmental agency personnel including ADECA, DOE, USDA and NRCS; and 8) homeowners and others interested in energy conservation.

All educational programming efforts target audiences without exclusion or discrimination, as specifically defined by ACES policy guidelines.

3. How was eXtension used?

eXtension used to set up course shell for the certified biomass procurement specialist program.

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	150	24600	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	6	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Participants reached

Year	Actual
2012	150

Output #2

Output Measure

- video produced

Year	Actual
2012	6

Output #3

Output Measure

- web pages developed

Year	Actual
2012	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Knowledge gained
2	recomendations addopted
3	Energy saved and produced

Outcome #1

1. Outcome Measures

Knowledge gained

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

2012 double crop soybeans had a hard, hot, dry start that changed to a great growing season that had good yields showing significant differences between fertilizer and commercial fertilizer treatments. Soybean feedstock producers care because it affects their yield and profitability.

What has been done

Lodging and Yield Response of Soybeans Following Wheat When Wheat Is Fertilized With Poultry Litter. Five different treatments were tested.

Results

Fertility Treatment	Fertility Cost	Soybean Yield/Acre	Lodging	None-Laydown
1-5 Soybean Value/Acre	Wheat/Soybean Fertility Treatment			
Value - Cost				
2 tons litter Pre-plant	\$9050.57	2.62	\$783.84	\$693.84
2 tons litter Pre-plant /				
1 ½ ton litter Top Dress	\$157.50	46.78	2.13	\$725.09
20 units Commercial N Pre-Plant / 80 units Commercial N Top Dress	\$8045.92	1.33	\$711.76	\$631.76
2 tons litter Pre-plant / 40 units Commercial N Top Dress	\$12243.67	2.50	\$676.89	\$554.89
NRS-Nitrogen Rich Strip ? 100 units Commercial N Pre-plant	\$8048.83	1.50	\$756.86	\$676.86

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
403	Waste Disposal, Recycling, and Reuse
603	Market Economics

Outcome #2

1. Outcome Measures

recomendations addopted

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Soybean seeding rates. Producers want to cut production cost and maximise yield by adopting correct seeding rate.

What has been done

Conducted test in three different locations with eight different seeding rates.

Results

Seeds/acre	Yield/acre	Price received/acre	Seed cost/acre	Price minus seed cost
30,000	66.11	24.55	11.79	12.76
60,000	72.51	23.75	23.57	100.00
90,000	73.51	39.25	35.36	1103.89
120,000	70.21	88.10	47.14	1040.96
150,000	70.01	85.00	58.93	1026.07
180,000	69.71	80.35	70.71	1009.64
210,000	66.31	27.65	82.50	945.15

4. Associated Knowledge Areas

KA Code	Knowledge Area
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102	Soil, Plant, Water, Nutrient Relationships
402	Engineering Systems and Equipment
603	Market Economics

Outcome #3

1. Outcome Measures

Energy saved and produced

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)

Increased soybean yield could result in increased biodiesel production.

What has been done

2012 soybean demonstrations showed how to increase yield 14.3 bushels per acre.

Results

20 gallons of biodiesel per acre increase. (14.3 bushels per acre X 1.4 gallons of biodiesel per bushel.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
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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

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Fleet managers better understand benefits of using biodiesel because of training received.

Feedstock demonstrations increase renewable energy feedstock production.

Key Items of Evaluation

Fleet managers increase biodiesel useage as circumstances permit.

Increased feedstock production.