

# Technology & Engineering

Technology & Engineering

## V(A). Planned Program (Summary)

### 1. Name of the Planned Program

Technology & Engineering

## 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	11%		11%	
111	Conservation and Efficient Use of Water	12%		12%	
112	Watershed Protection and Management	4%		4%	
132	Weather and Climate	1%		1%	
402	Engineering Systems and Equipment	12%		12%	
404	Instrumentation and Control Systems	5%		5%	
405	Drainage and Irrigation Systems and Facilities	10%		10%	
512	Quality Maintenance in Storing and Marketing Non-Food Products	10%		10%	
601	Economics of Agricultural Production and Farm Management	5%		5%	
605	Natural Resource and Environmental Economics	5%		5%	
806	Youth Development	25%		25%	
<b>Total</b>		<b>100%</b>		<b>100%</b>	

## V(C). Planned Program (Inputs)

### 1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	5.0	0.0	0.0	0.0
<b>Actual</b>	14.4	0.0	2.2	0.0

### 2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c 231548	1890 Extension 0	Hatch 28905	Evans-Allen 0
<b>1862 Matching</b> 175158	<b>1890 Matching</b> 0	<b>1862 Matching</b> 29356	<b>1890 Matching</b> 0
<b>1862 All Other</b> 1358991	<b>1890 All Other</b> 0	<b>1862 All Other</b> 880545	<b>1890 All Other</b> 0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

- Conduct field tours, work shops, educational meetings and farm visits
- Produce publications and post information to web site
- Conduct on-farm demonstrations
- Develop and release CES decision support tools
- Conduct non-duplicated 4-H Youth technology and engineering programs

**2. Brief description of the target audience**

Row crop producers, livestock producers, poultry producers, landowners, consultants, pesticide applicators, agricultural agencies and businesses and other interested groups  
4-H Youth

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	3000	1100	550	700
2008	12535	20158	7039	528

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

**Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	0
2008:	0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	0	0	
2008	5	30	35

**V(F). State Defined Outputs****Output Target****Output #1****Output Measure**

# of any CES on-farm demonstrations of livestock and poultry manure management, drainage and irrigation water management, fertilizer and pesticide application or crop processing

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	30	393

**Output #2****Output Measure**

# of any CES Field Tours of livestock and poultry manure management, drainage and irrigation water management, fertilizer and pesticide application or crop processing

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	10	11

**Output #3****Output Measure**

# of any CES sponsored Educational Meetings addressing livestock and poultry manure management, drainage and irrigation water management, fertilizer and pesticide application or crop processing

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	50	117

**Output #4****Output Measure**

# Attending any CES sponsored Educational Meetings addressing livestock and poultry manure management, drainage and irrigation water management, fertilizer and pesticide application or crop processing

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	2500	2723

**Output #5****Output Measure**

# of publications that include information on livestock and poultry manure management, drainage and irrigation water management, fertilizer and pesticide application or crop processing

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	10	95

**Output #6****Output Measure**

# of postings to web sites of information on livestock and poultry manure management, drainage and irrigation water management, fertilizer and pesticide application or crop processing

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	5	7

**Output #7****Output Measure**

# of CES software decision tools delivered

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	100	142

**Output #8****Output Measure**

# of county 4-H Tech Teams

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	15	15

**Output #9****Output Measure**

# of state 4-H Tech Team workshops

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	6	6

**Output #10****Output Measure**

# Of participants at the Arkansas 4-H Technology Conference

Technology & Engineering

*Not reporting on this Output in this Annual Report*

**Output #11**

**Output Measure**

# of participants enrolled in the 4-H GPS and Nature Mapping Program

*Not reporting on this Output in this Annual Report*

**Output #12**

**Output Measure**

# Of Technology & Engineering clientele contacts from education classes, workshops, group discussions, one-on-one interventions, demonstrations, and other educational methods

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	3550	15710

**Output #13**

**Output Measure**

# of Technology & Engineering education classes, workshops, group discussions, one-on-one interventions, demonstrations, and other educational events

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	265	2191

**Output #14**

**Output Measure**

# Attending any CES Field Tours of livestock and poultry manure management, drainage and irrigation water management, fertilizer and pesticide application or crop processing

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	200	235

**Output #15**

**Output Measure**

# of cooperators involved in CES on-farm demonstrations of livestock and poultry manure management, drainage and irrigation water management, fertilizer and pesticide application or crop processing

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	30	57

**V(G). State Defined Outcomes**

O No.	Outcome Name
1	# of people who increased their knowledge after attending any CES sponsored educational meeting, field tour or on-farm demonstration addressing livestock and poultry manure management, drainage and irrigation water management, fertilizer and pesticide application or crop processing
2	# of people who adopted or implemented a recommendation after attending any CES sponsored educational meeting, field tour or on-farm demonstration addressing livestock and poultry manure management, drainage and irrigation water management, fertilizer and pesticide application or crop processing
3	# of county 4-H Tech Team members who increased their knowledge related to use of technology
4	# of participants in 4-H GPS and Nature Mapping program who increased their knowledge of careers that use GPS
5	% of participants enrolled in the 4-H GPS and Nature Mapping Program that used GPS for the first time during the program
6	% of participants enrolled in the 4-H GPS and Nature Mapping program that reported learning enough about GPS during the program to use it on their own
7	% of participants enrolled in the 4-H GPS and Nature Mapping program that plan to use GPS again in the future
8	# of 4-H Youth participants who learned "Wise Use of Resources" life skill
9	# of 4-H Youth participants who learned "Decision Making" life skill
10	# of county 4-H Tech Team members who completed a community service project using technology
11	# of 4-H Journals completed in technology and engineering
12	# of 4-H Youth projects completed in technology and engineering
13	# of non-duplicated 4-H Youth participating in technology and engineering events
14	Average water savings in % in MIRI fields
15	# of 4-H Youth awarded post secondary scholarships related to technology and engineering
16	% of participants enrolled in the 4-H GPS and Nature Mapping program that would consider a career in a technology field and/or in a field using GPS technology
17	# of requests for CES software decision tools
18	Acres associated with any of the following water management practices: measuring pump flow, multiple inlet irrigation, surge irrigation, irrigation scheduling, border irrigation, furrow irrigation with phaucet design

**Outcome #1**

**1. Outcome Measures**

*Not reporting on this Outcome for this Annual Report*

**2. Associated Institution Types**

**3a. Outcome Type:**

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
------	---------------------	--------

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
---------	----------------

**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

**Brief Explanation**

**V(I). Planned Program (Evaluation Studies and Data Collection)**

**1. Evaluation Studies Planned**

After Only (post program)

Before-After (before and after program)

During (during program)

Case Study

Comparisons between program participants (individuals, group, organizations) and non-participants

**Evaluation Results**

During 2008, our program greatly exceeded Adult and Youth targeted contacts.

A Case Study approach was successfully conducted during the on-farm demonstration of using the 'Phaucet' Computer Program to design furrow irrigation systems for fields. A comparison of the irrigation situation before and after the demonstration revealed a 25% average reduction for both the irrigation water pumped and the pumping cost.

**Key Items of Evaluation**

25% average reduction for both the irrigation water pumped and the irrigation pumping cost.