

# **Report to the 2006 Ag Advisory Council**

## **REDUCING ENERGY USE IN KENTUCKY ENERGY**

by  
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### **BACKGROUND**

The Kentucky Cooperative Extension Service has historically provided agricultural producers with researched based information to enhance their production efficiency. In the past the cost of energy was a consideration, see Appendix A, but not a focus. As energy costs increase producers have limited methods to pass on those costs. As a result the level of interest in reducing energy consumption has increased. In addition, advances in the use of agricultural products as energy sources have increased the interest of producers in the development of their own energy sources. Kentucky agricultural producers need a method to determining their current energy consumption and evaluating options to reduce their external energy consumption including the incorporation of renewable energy resources.

The Farm Security and Rural Investment Act of 2002 (2002 Act) Renewable Energy Systems and Energy Efficiency Improvements Program under Title IX, Section 9006 created a program to make loans, loan guarantees, and grants to "a farmer, rancher, or rural small business" to purchase renewable energy systems and make energy efficiency improvements. While this program is available to date few Kentucky agricultural producers have been able to take advantage of the program, in part due to the application process. To take advantage of this opportunity agricultural producers must be provided guidance on the application process.

On a national level there is a renewed interest in energy conservation and alternative energy sources for agricultural. For example, this fall in Des Moines, Iowa, American Council for an Energy Efficient Economy will host its inaugural Forum on Energy Efficiency in Agriculture -- a two day conference bringing together both the energy and agriculture communities for a dialogue addressing the promotion of energy-efficient technologies in this most crucial of American industries.

The Kentucky Cooperative Extension Service is uniquely positioned to not only develop but also deliver a program directed at aiding agricultural producers and rural clientele in dealing with energy options. With Extension agents in all 120 counties in the state the Kentucky Cooperative Extension Service can determine what agricultural producers information needs are. Once those needs have been determined, Extension Specialists at the University of Kentucky can develop the information resources needed to respond to those needs. Once the information resources are developed the agents can deliver them in a manner that best meets their particular clientele needs. This project will insure that renewable energy resources will be included in the information provided.

## GOALS

To engage county Extension agents in a process that will result in the location, development and distribution of decision aids that will allow their clientele to reduce energy consumption, consider alternative energy sources and be able to complete successful for federal funding opportunities.

- Identification of clientele information needs
  - Focus on renewable energy resources
    - Bio-diesel
    - Ethanol
    - Methane
  - Focus on petroleum use conservation
    - Operation of field machinery
    - Select of field machinery
    - Cropping cultural practices that minimize field operations
- Guidance on applying for Renewable Energy Systems and Energy Efficiency Improvements Program grants
  - Have grants applications made by Kentucky producers

## STATUS

The Kentucky Cooperative Extension Service has created a state wide Energy Quick Response Team because of the interest shown in all three regions of the state. The team members are:

Charles Stamper, Regional Coordinator – Co-Chair  
Robert Fehr, Extension Professor, BAE – Co-Chair  
Jerry Brown, County Agent for ANR, Boone County  
Ron Catchen, County Agent for ANR, Montgomery County  
Susan Fox, County Agent for ANR, Lyon County  
Annette Heisdorffer, County Agent for Horticulture, Daviess County  
Kim Henken, Extension Associate for Environmental Issues, FCS  
David Herbst, County Agent for ANR, Adair County  
Curt Judy, County Agent for ANR, Todd County  
Bill Peterson, County Agent for ANR, Mason County  
Peggy Powell, County Agent for FCS, Montgomery County  
Mark Reese, County Agent for ANR, Scott County  
Carol Rison, County Agent for FCS, Bath County  
Ray Wilson, County Agent for ANR, Leslie County

The team has met twice, November 21, 2005 and December 16, 2005 to review the current status of Extension support for energy issues and determine how to begin to identify issues of concern to our clientele. The team has decided that Kentucky should take a leadership role in assisting our clientele in dealing with high energy prices.

As a result of the first meeting a message was sent to all faculty in the College of Agriculture to determine who was working on energy related issues and if they would be willing to assist in providing support to this effort. The feedback from that message is being collected and reviewed.

On November 9<sup>th</sup>, 2005, Dr Larry Turner, Association Dean for Extension, and Dr Nancy Cox, Associate Dean for Research, called the first College wide meeting to discuss the College of Agriculture's activities. Faculty involved in various aspects of energy research and extension work gave reports. One result of this meeting was the decision to hold a College wide day long meeting on College energy activities.

Biosystems and Agricultural Engineering faculty attended 3 meeting, ACEEE's Forum on Energy Efficiency and Agriculture: 2005, 2005 Alabama Agriculture Energy Conference, and the Energy From Agriculture Conference, to make contacts with other individuals active in agricultural energy. As a result of these meeting we are better able to address the 2002 Farm Bill Section 9006 Renewable Energy and Energy Efficiency Program

Significant work has been done on an upgrade of the College energy Web site. The new look and feel can be seen at:

<http://ces.ca.uky.edu/energy/shamick>

The new site also contains several decision aid calculators being developed to assist clientele with their energy decisions.

#### **FUTURE EFFORTS**

- Presentation on the 2002 Farm Bill Section 9006 Renewable Energy and Energy Efficiency Program at the Kentucky Fruit and Vegetable Growers Conference.
- Energy display, including information on the 2002 Farm Bill Section 9006 Renewable Energy and Energy Efficiency Program, at the Daviess County Extension Expo.
- Energy display, including information on the 2002 Farm Bill Section 9006 Renewable Energy and Energy Efficiency Program, at the Farm Machinery Show.
- Agricultural energy special interest group meeting at the Kentucky State Agricultural Extension Advisory Council Meeting.
- Continued work with the Energy Quick Response Team on the identification of needed support materials.

APPENDIX A

Energy Use by Field and Vegetable Crops Based on the Kentucky Field Crops and Forage Enterprise Budgets and Vegetable and Melon Enterprise Budgets

<b>FIELD CROP</b>	<b>Direct</b>	<b>Indirect</b>	<b>Total</b>
ALFALFA HAY, FOR CASH SALE, ESTABLISHED STAND	12.31%	45.46%	57.77%
NO-TILL CORN, ROTATION FOLLOWING SOYBEANS	13.07%	48.14%	61.21%
CONTINUOUS CORN, CONVENTIONAL TILLAGE	15.41%	46.36%	61.77%
POPCORN, CONTRACTED, REDUCED TILLAGE	11.12%	55.43%	66.55%
CORN SILAGE, NO-TILL	7.24%	55.48%	62.72%
WHITE CORN, ROTATION FOLLOWING SOYBEANS, REDUCED TILLAGE	18.13%	40.81%	58.93%
GRASS LEGUME HAY, ROUND BALES	18.70%	30.70%	49.40%
GRAIN SORGHUM, CONVENTIONAL TILLAGE	15.61%	49.74%	65.35%
SOYBEANS, NO-TILL, ROTATION FOLLOWING CORN	13.75%	32.22%	45.96%
BARLEY - NO-TILL SOYBEANS, DOUBLE CROP, FOLLOWING CORN	8.99%	51.33%	60.32%
WHEAT - NO-TILL SOYBEANS, DOUBLE CROP, FOLLOWING CORN	8.23%	53.39%	61.61%
WHEAT, REDUCED TILLAGE	6.17%	54.85%	61.02%
<b>AVERAGE</b>	<b>12.39%</b>	<b>46.99%</b>	<b>59.39%</b>

<b>VEGETABLE CROP</b>	<b>Direct</b>	<b>Indirect</b>	<b>Total</b>
BROCCOLI: Fall Crop, Fresh Market, Overhead Irrigated	2.64%	6.79%	9.43%
CABBAGE, GREEN: Fresh Market, Overhead Irrigated	2.61%	10.79%	13.40%
CUCUMBERS: Fresh Market, Trickle Irrigated	2.12%	8.78%	10.90%
CUCUMBERS: Fresh Market, Trickle Irrigated, Late Summer Planting,	1.65%	7.26%	8.91%
EGGPLANT: Trickle Irrigated	2.25%	5.77%	8.02%
MUSKMELON (Cantaloupes and Green Flesh Melons): Trickle Irrigated	2.25%	11.11%	13.36%
OKRA: Fresh Market, Trickle Irrigated	4.79%	14.26%	19.05%
PEPPERS, BELL: Fresh Market, Trickle Irrigated	1.38%	5.76%	7.14%
PEPPERS, Jalepeno: Fresh Market, Trickle Irrigated, Field Packed	2.98%	12.45%	15.43%
POTATOES: Fresh Market, Overhead Irrigated	6.72%	15.15%	21.87%
PUMPKINS: Non-irrigated	2.98%	25.68%	28.66%
SQUASH, SUMMER: Trickle Irrigated	2.70%	8.26%	10.96%
SQUASH, WINTER: Trickle-irrigated	3.06%	11.13%	14.19%
SWEET CORN: Overhead Irrigated	7.62%	18.30%	25.92%
TOMATOES, STAKED: Fresh Market, Trickle Irrigated	1.44%	4.66%	6.11%
WATERMELONS, Seeded: Trickle Irrigated	4.08%	14.73%	18.82%
WATERMELONS, Seedless: Trickle Irrigated	3.95%	14.25%	18.20%
<b>AVERAGE</b>	<b>3.25%</b>	<b>11.48%</b>	<b>14.73%</b>

Direct = Fuel and Irrigation Costs

Indirect = Fertilizer, Herbicide, Pesticide, and Fungicide Cost