

USDA report shows improving corn-ethanol energy efficiency

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USDA Report highlights Increased Energy Efficiency for Corn-based Ethanol

Harry Baumes, Acting Director of USDA's Office of Energy Policy and New Uses, says a report that surveyed corn growers in 2005 and ethanol plants in 2008 indicates the net energy gain from converting corn to ethanol is improving in efficiency.

Titled "2008 <u>Energy Balance</u> for the Corn-Ethanol Industry," the report surveyed <u>ethanol</u> producers about ethanol yield (undenatured) per bushel of corn and energy used in ethanol plants.

This report measured all conventional fossil fuel energy, 53,785 BTU used in the production of 1 gallon of corn ethanol. For every British



Thermal Unit (BTU) (unit of heat equal to the amount of heat required to raise one pound of water one degree Fahrenheit at one atmosphere) of energy required to make ethanol, 2.3 BTUs of energy are produced (energy output/energy input). The ratio is somewhat higher for some firms that are partially substituting biomass energy in processing energy (thermal and electrical energy required in the plant to convert corn to one gallon of ethanol). Since the last study in 2004, the net energy balance of <u>corn ethanol</u> has increased from 1.76 BTUs to 2.3 BTUs of required energy.

According to the report, overall, ethanol has made the transition from an energy sink (more energy used than energy produced), to a moderate net energy gain in the 1990s, to a substantial net energy gain in the present. And there are still prospects for improvement. Ethanol yields have increased by about 10 percent in the last 20 years, so proportionately less corn is required. In addition to refinements in ethanol technology, corn yields have increased by 39 percent over the last 20 years, requiring less land to produce ethanol. The report can be found <u>here</u>.

Provided by USDA Agricultural Research Service

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