



[Return to Kansas Ethanol Homepage](#)

E85 Fuel for Flexible Fuel Vehicles

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What is E85?

E85 is the term for motor fuel blends of 85 percent ethanol and just 15 percent gasoline. E85 is an alternative fuel as defined by the U.S. Department of Energy. Besides its superior performance characteristics, ethanol burns cleaner than gasoline; it is a completely renewable, domestic, environmentally friendly fuel that enhances the nation's economy and energy independence.

Today, the U. S. imports more than half of its oil, and overall consumption continues to increase. By supporting ethanol production and use, U.S. drivers can help reverse that trend. 85% ethanol can reduce pollution. Government tests have shown that E85 vehicles reduce harmful hydrocarbon and benzene emissions when compared to vehicles running on gasoline. E85 can also reduce carbon dioxide (CO2), a harmful greenhouse gas and a major contributor to global warming.

E-85 fuel is available at stations in locations in many states. In Kansas, you can purchase E-85 fuel for your flexible fuel vehicle at four locations:

Power Plus
3505 Vine St (I-70 access)
Hays, KS

Capital City Oil—
4141 NW Lower Silver Lake Road
Topeka, KS
(This fueling facility accepts only the CFN Network card, or the state's Wright Express credit card. The station is designed for fleet use, but anyone can apply for a cardlock card at Capital City Oil. Web site: www.capitalcityoil.com)

Maize Kwik Shop
5340 N. Maize Road
Maize, KS

Petro Plus
120 S. Maple (Highway 59)
Garnett, KS

Work is underway to add more E85 fueling sites in Kansas in 2004.

For information on locations in other states, visit the [National Ethanol Vehicle Coalition website](#).

Can I Use E-85 in My Vehicle?

E-85 fuel can be used in flexible fuel vehicles (FFVs). A flexible fuel vehicle is able to operate on any combination of gasoline and ethanol up to 85 percent ethanol. The FFV system allows the driver to use any combination of gasoline or ethanol - from 100 percent unleaded gasoline to 85 percent ethanol. E85 partners, GMC, DaimlerChrysler and Ford all produce vehicles that can run on E85 or gasoline when E85 is unavailable. Ask for an FFV at your favorite showroom - it costs nothing extra and may just save you a bundle...since your engine may last longer.

What vehicles are available as FFV's?

NEW! List updated with 2005 models

Daimler Chrysler Corporation

Returning for 2005! Dodge Caravan
2004-05: 4.7L Dodge Ram 1500 Series
2003-05: 2.7L Stratus Sedan, Sebring
2003: 3.3L Dodge Cargo Minivan
1998-03: 3.3L Dodge, Plymouth & Chrysler Minivan

Ford Motor Company

2004-05: 4.0L Sport Trac
2002-05: 4.0L Explorer
1999-05: 3.0L Taurus LX, SE & SES Sedan
2001-03: 3.0L Ranger Supercab 2WD
1999-00: 3.0L Ranger 2WD & 4WD

General Motors Corporation

2002-05: 5.3L Suburban, Tahoe & Yukon
2002-04: 5.3L Selected Sierra & Silverado Pickup
2000-02: 2.2L Chevrolet S-10 & GMC Sonoma Pickup
New for 2005--Police package Tahoe and Avalanche

Mazda

1999, 2001-02: 3.0L Mazda B3000 Pickup

Mercury

2002-05: 4.0L Selected Mountaineer
2001 & 2005: 3.0L Selected Sable

Isuzu

2000-01: 2.2L Hombre Pickup

Mercedes-Benz

2003-05: 3.2L C320 Sport Sedan & Wagon

Flexible Fuel Vehicle Manufacturers

[GM Alternative Fuel Vehicles](#)

[Ford Ethanol Vehicles](#)

[Daimler-Chrysler Ethanol Vehicles](#)

Visit the National Ethanol Vehicle Coalition (NEVC) web site for more information on E85 Fuel--
CLICK HERE TO GO TO THE NEVC WEB SITE!



This page last updated May 19, 2004



[Return to Kansas Ethanol Homepage](#)

DDGS

*Valuable ethanol co-product/
Valued livestock feed*

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DDGS (Dried Distillers Grains with Solids)—This coproduct of the ethanol production process is a high nutrient feed valued by the livestock industry.

DDGS Quick Facts

WHAT IS DDGS?

When ethanol plants make ethanol, they use only starch from corn and grain sorghum. The remaining nutrients - protein, fiber and oil - are the by-products used to create livestock feed called dried distillers grains with solubles-DDGS

Kansas currently has six ethanol plants located in Atchison, Colwich, Russell, Campus, Garden City and Leoti, producing over 122.5 million gallons of ethanol.

A third of the grain that goes into ethanol production comes out as DDGS. Each bushel of grain used in the ethanol-making process produces 2.7 gallons of ethanol; **18 pounds of DDGS** and 18 pounds of carbon dioxide.

DDGS Qualities:

Rich in cereal and residual yeast proteins, energy, minerals and vitamins.

Is an excellent digestible protein and energy source for beef cattle.

Can comprise 20-30% of the ration DM.

Can also be used in turkey and swine applications.

Is a valuable feed for both feedlot and dairy cattle. In North America, over 80% of DDGS is used in ruminant diets. DDGS also is fed to poultry. Recent studies show excellent nutritional value of DDGS in swine diets, and its use is increasing in the pork industry.

Typical DDGS Analysis		
Item	DM (dry matter)	As Feed
Dry Matter %	100	89
Crude Protein%	30.71	27.3
TDN (%)	77.83	69.19
NEL (mcal/cwt)	81.02	72.02
NEM (mcal/cwt)	87.88	75.46
NEG (mcal/cwt)	55.83	72.02
NFC (%)	18.06	16.05
ADF (%)	15.62	13.88
NDF (%)	33.25	29.56
Fat (%)	13.39	11.90
Calcium	0.06	0.05
Phosphorus(%)	0.94	0.83

ADDITIONAL DDGS INFORMATION

[Distillers Grains Technology Council](#)

[University of Minnesota Distillers Grain Site](#)

Current Issues

- [Ethanol](#)
- [Genetically Modified Organisms](#)
- [Environment](#)

Ethanol

Ethanol offers the solution to fuel shortages, polluted air and depressed farm economies.

Auto exhaust adds to the air pollution of many of our country's cities. Oil is a finite resource, and foreign markets have proven an unstable source. Today the U.S. imports over 50% of its energy, more than at any other time in our history, and the number is expected to grow to 60% by the year 2010. Transportation is a key factor in our oil dependence. Petroleum-derived gasoline, diesel and jet fuel make up 97% of our nation's transportation energy. Over 61% of petroleum used has to be imported.

Farmers have found a way to help reduce carbon monoxide emissions from a renewable resource. Ethanol is an alcohol product produced from the starch portion of a kernel of corn. It contains nearly twice as much oxygen as any other gasoline additive. Each bushel of corn can produce 2.5 gallons of ethanol fuel. Only the starch from the corn is used to make ethanol, leaving the protein and valuable products for other uses. For example, that same bushel of corn can also produce: 1.5 pounds of corn oil, 12.4 pounds of 21% protein feed, 3 pounds of 60% protein gluten meal, and 17 pounds of carbon dioxide (used for carbonating soft drinks and other beverages).

What does it mean to our environment? The more oxygen in a fuel, the cleaner and more efficiently it burns. Ethanol blended fuels burn cleaner and pollute less, therefore reduces air pollution. The U.S. EPA has determined that Ethanol-blended fuels reduce carbon monoxide emissions by 25-30 percent. Ethanol is the only motor fuel that will not contribute to the "greenhouse effect", rather, Ethanol's high oxygen content reduces hydrocarbon emissions more than any other oxygenate. Every gallon of ethanol used saves non-renewable petroleum as it is made from a renewable resource - grain. One acre of American corn produces 300 gallons of ethanol - enough to drive 4 cars for one year and enough to displace 400 gallons of imported oil. Much of the food value is removed from the corn and wheat before making ethanol, so you get both food and fuel from the same kernel of corn or wheat, fully utilizing the resource and diminishing waste.

What does it mean to our economy? Using ethanol, a renewable clean-burning domestic fuel, displaces imported oil which helps the U.S. better meet its energy demand and increase our country's energy security. The industry creates more than 55,000 jobs nationally in ethanol production and related industry and services. Farmers benefit because ethanol production provides consistent demand for surplus corn and improves corn prices. Many states have economic incentives as well to encourage the development of the ethanol industry. Some offer state tax incentives for ethanol blends or financial incentives or a combination of both. Each dollar's worth of up-stream and on-farm economic activity attributable to ethanol production generates \$3.20 in downstream economic stimulus.

Two specific pieces of federal legislation, the Clean Air Act Amendments of 1990 and the Energy Policy Act of 1992 mandate the phased-in adoption of cleaner burning vehicles. Under these federal laws, state, municipal and private fleets must meet stricter emission guidelines starting in 1998. This will be accomplished by replacing existing fleet vehicles with new "Clean Vehicle" technology like Ethanol use. By 2000, 70 percent of all new fleet vehicle purchases must meet these new standards.

Visit [American Coalition for Ethanol and Renewable Fuels Association](#) for more information.

[Return to Top of Page](#)

Genetically Modified Organisms

Scientists have been improving crop genetics for generations. What's so different about GMOs?

For centuries humans have directed the recombining of genetic material through the selective breeding of plants and animals leading to new varieties better suited to their environments. As the knowledge of the genetic basis of heredity has grown, the genetic modifications have become more precise. Genetic engineering, or recombinant DNA technology, refers to the very precise molecular techniques that join specific segments of DNA molecules from different sources. This is accomplished with enzymes designed to cut and join DNA in predictable ways.

Many scientists view genetic engineering as simply an extension of selective breeding because it is the joining of genetic material from different sources to create organisms that possess new, useful traits. In genetic engineering single genes whose function is known are moved from one organism to another. By increasing the precision and certainty of the genetic manipulations, the risk of producing organisms with unexpected traits decreases.

The traits agricultural scientists are incorporating into crops through genetic engineering are precisely the same traits that have been bred into crops through selective breeding: improved nutritional content; delayed ripening; resistance to diseases caused by bacteria, fungi and viruses; better taste; the ability to withstand harsh environmental conditions such as freezes and droughts; greater nitrogen-fixation capabilities; and resistance to pests such as insects, weeds and nematodes.

What does it mean to our environment? As plants become more resistant to disease, pests and adverse weather conditions, less crop protectants and nutrients are needed. Increase yields will allow land in more environmentally sensitive areas to be set aside for protection of those critical areas.

What does it mean to our economy? As the quality and yield of agricultural products improves, a more stable farm economy will improve rural areas. Decreases in production costs will provide consumers continued low cost foods at a higher quality. Food safety will be increased as tests for harmful bacteria will be quicker and more sensitive to low levels of contamination than previous tests because of the specificity of the techniques.

Visit [Council for Agricultural Science and Technology](#) for more information.

[Return to Top of Page](#)

Environment

Protecting the environment is essential to a farmer's operation. But what are they really doing?

Long before the term "environmentalist" was coined, Maryland farmers were quietly working to protect natural resources while providing a steady food supply for a growing population. This legacy of stewardship dates back to the Dust Bowl years of the 1930s when Maryland farmers began working with soil conservationists to protect the soil from the devastating effects of wind and water erosion. Today, Maryland farmers plan and implement conservation practices and programs that balance crop and livestock production with the need to protect natural resources.

As concern for the health of the Chesapeake Bay has intensified, Maryland farmers have taken a proactive role in the restoration effort by changing the way they farm the land. Farmers are implementing approved nutrient management plans which provide site-specific fertilizer recommendations designed to maximize yields while minimizing nutrient losses to the environment. Nutrient management plans also help ensure proper storage, handling and application of fertilizers and animal manure.

Farmers statewide are using a range of conservation tools designed to prevent soil erosion, control nutrient movement, and safeguard water quality in the Bay and its tributaries to ensure a healthy environment while providing for the food and fiber needs of the consumer.

What does it mean to our economy? Agriculture is Maryland's largest industry, contributing 11 billion dollars annually to the state. Farmers know their economic future depends on caring for their environment to allow for production in future years.

Visit [Conservation - Harmony with the Land](#) and [Backyard Actions for a Cleaner Chesapeake Bay](#) for more information.

[Return to Top of Page](#)

| [Home](#) | [Uses Gallery](#) | [Uses Index](#) | [Benefits](#) | [How It Works](#) | [Issues](#) | [What's News](#) | [Calendar](#) | [Speakers Bureau](#) | [Producers](#) | [Checkoff Program](#) | [Legislative Action](#) | [Newsletter](#) | [Board](#) | [For More Info](#) | [Join Us](#) | [Email MGP](#) |

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