



# Biofuels Fact Sheet

## *What are Biofuels?*

Biofuels are transportation fuels created from the conversion of biomass (plant-derived material), oil crops, animal fats, and waste oil into liquid or gaseous fuels used to power vehicles. The primary biofuels used today are biodiesel and ethanol. Both of these fuels can be easily integrated into the existing fuel infrastructure.

## *What is Biodiesel?*

Biodiesel is a locally grown, clean burning, renewable fuel produced from any type of vegetable or animal fat. Common feedstocks are soybean, cottonseed, sunflower, palm, canola, corn, peanut, poultry fat, algae, and used cooking oil.

Biodiesel can be used alone in its pure form (B100), but is most often blended with regular diesel (petroleum distillate) in various amounts, such as B20 (20% biodiesel/80% regular diesel). Biodiesel can also be used in low blends as an additive, such as B2 (2% biodiesel blended/92% regular diesel) to help with the lubrication needs of ultra-low sulfur diesel fuel, which was federally mandated in 2006. Biodiesel can be used in any diesel engine with little to no modifications to the vehicle. More than 400 fleets across the U.S. are successfully using biodiesel.

## *What is Ethanol?*

Ethanol is a local, homegrown, biodegradable fuel made made by fermenting and distilling saccharides (sugars) and starches. Ethanol is typically blended with gasoline in various percentages, such as E85 (85% ethanol, 15% gasoline). Ethanol can also be used as an additive, E10 (10% ethanol), in gasoline used to enhance octane content or as an oxygenate to replace MTBE (methyl tertiary-butyl ether) to meet clean fuel requirements. Ethanol is currently blended into approximately 30% of the nation's gasoline supply. MTBE has been widely used to meet the federal gasoline oxygenate requirements but has contaminated drinking water supplies in some 28 states.

All automotive manufacturers support use of E10 (10% ethanol) in their vehicles. In addition, there are more than 4 million flexible fuel vehicles [vehicles than can run on gasoline or ethanol (up to 85%-E85)] on the road today in North America.

More than 90% of U.S. ethanol production comes from corn, with 10% of the U.S. corn crop used for ethanol production. However, ethanol can be produced from cellulosic (plant fiber) sources, referred to as **cellulosic or cellulose ethanol**. These sources include **agricultural residues** (such as wheat straw, corn stover-leaves, stalks, and cobs, rice straw, and sugar cane waste), **dedicated energy crops** (such as fast-growing trees, shrubs, and various grasses), and **forest residues** (such as excess forest residues from cutting and harvesting).



## What are the benefits of using biofuels?

- Reduces our dependence on foreign sources of oil thereby enhancing our nation's security
- Strengthens the Southeastern agricultural economy through new jobs and tax revenue
- Reduces global warming pollutants
- Reduces cancer-causing air toxics and other pollutants that negatively impact public health



## Life-Cycle Energy Balance

The energy balance of biodiesel is positive, 3.24:1. For every unit of energy input, 3.24 units of energy are produced. The life cycle energy balance and benefits of corn-based ethanol have been contentiously disputed. However, expert consensus concludes that the energy balance for ethanol is 40-60% net positive. For every unit of energy input, 1.4-1.6 units are produced.

<i>Emissions Benefits of Biodiesel</i>	<i>Emissions Benefits of Ethanol</i>
<p>B2 (2% Biodiesel):                      1-2% reduction of carbon monoxide                      1-2% reduction of particulate matter                      2-3% reduction of hydrocarbons &amp; sulfates</p>	<p>E85 (85% Ethanol):                      40% reduction of carbon monoxide                      20% reduction of particulate matter                      10% reduction of nitrogen oxides                      80% reduction of sulfates                      Lower hydrocarbons</p>
<p>B20 (20% Biodiesel):                      10-12% reduction of carbon monoxide                      10-15% reduction of particulate matter                      10-20% reduction of hydrocarbons                      20% reduction of sulfates</p>	
<p>E10 (10% Ethanol):                      25-30% reduction of carbon monoxide                      20% reduction of nitrogen oxides                      6-10% reduction of carbon dioxide</p>	
<p>According to the U.S. Department of Energy (DOE), the cancer-causing potential of B100 is 94% less than regular diesel and 27% less for B20. In addition, according to a DOE study, use of B100 compared to petroleum-based diesel will reduce carbon dioxide emissions by 78%</p>	

## What is Southern Alliance for Clean Energy doing?

- Supporting energy legislation and policies that will assist in meeting the vision established by the 25X25 Working Group that calls for 25% of the energy used in the U.S. by 2025 to come from America's working lands.
- Working with allies in agricultural and rural communities to identify bioenergy technologies that will help forward our goals of ensuring clean, safe, and healthy communities in the Southeast.
- Working to increase communication and information sharing with farmers, foresters, politicians, community decision makers, and academic researchers on important energy issues.

## What can you do to help?

- **Join Southern Alliance for Clean Energy.** Support our efforts to promote clean energy technologies. Visit [www.cleanenergy.org](http://www.cleanenergy.org).
- **Invest in bioenergy.** Average farmers can become energy producers, just like big oil and electric utility companies. They can create new markets and jobs and help reduce global warming.
- **Contact your federal and state legislators** and ask them to support legislative action to develop clean energy sources.

**For more information contact Southern Alliance for Clean Energy**  
**1-866-522-SACE (7223) or [www.cleanenergy.org](http://www.cleanenergy.org)**  
**In Georgia: 404-659-5675 In Tennessee: 865-637-6055**  
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