

HOW ARE BIOFUELS BETTER FOR THE ENVIRONMENT?

BIOFUELS CUT CARBON EMISSIONS

Ethanol reduces greenhouse gas emissions by 39 percent compared to traditional gasoline.

- ✓ By 2022, the [USDA anticipates](#) that corn ethanol's relative carbon benefits could reach up to 70 percent thanks to continued innovation in advanced biofuels.
- ✓ Over the first ten years of the Renewable Fuel Standard (RFS), biofuel use cut transportation-related carbon emissions in the U.S. by 589.33 million metric tons, the equivalent to removing more than 124 million cars from the road, according to the [Biotechnology Innovation Organization](#).

BIOFUELS ARE NECESSARY TO HELP ADDRESS OUR CLIMATE CONCERNS

The transportation sector is the largest carbon emitter in the U.S. economy. While great strides have been made with innovative vehicle technologies to increase energy efficiency and to allow new power sources for our vehicles, those technologies will take decades before they are accessible to all Americans.

Biofuels are the clean fuel solution available today. Ethanol made from corn and cellulosic biofuels derived from renewable biomass can significantly cut carbon emissions from fuel, meaning drivers can feel better about reducing their transportation footprint. And because ethanol is the lowest cost, highest octane fuel on the planet, future internal combustion engines should take advantage of this characteristic to allow greater efficiency gains in vehicles.

To address our nation's urgent climate concerns, the liquid fuels of today must be improved and replaced with cleaner and more advanced liquid options that harness the clean power of biofuels.

BIOFUELS KEEP OUR AIR CLEANER

Thanks to ethanol, there are fewer toxic, dirty chemicals in our fuel, water, and air. As an oxygenate, [ethanol replaces harmful carcinogens and toxic additives](#) like

methyl tert-butyl ether (MTBE) and benzene that can be found in petroleum-based fuels, while providing a high-octane boost. Ethanol also reduces carbon monoxide and [ozone](#), which are chemicals that contribute to smog in urban communities.

- ✓ In an April 2018 study by the [University of California Riverside](#), the findings demonstrate that ethanol blends reduce toxic emissions by up to 50 percent, including smog and [ultra-fine particulates](#).
- ✓ Additionally, research conducted by the University of Illinois at Chicago shows the impact of higher ethanol blend levels on human health in five large metropolitan cities outside of the U.S. The study shows that replacing traditional gasoline with E10 — gasoline blended with ten percent ethanol — would result in an average decrease in toxic emissions by 15.2 percent, while E20 blends would reduce toxins even more significantly: an average of 31.7 percent.

ONGOING INNOVATIONS DRIVES SUSTAINABILITY IN BIOFUEL PRODUCTION

The steady demand for biofuels has helped farmers make more efficient use of existing cropland, supplying consumer markets with more food and energy than ever before — all while protecting grasslands and forests.

- ✓ In fact, America's farmers are producing more food and energy than ever before, and they are [doing it on less cropland](#) than was under cultivation in the 1930s.
- ✓ Farmers have also [decreased the volume of water used for irrigating](#) each acre of corn — thanks to smarter farming techniques, they're using less water. With these increasingly sustainable practices, farmers are [producing record harvests without the need for more fertilizer](#) or pesticide.
- ✓ And it's not just on the farmland that we're seeing strides in innovation. At ethanol plants, the [42 percent drop](#) in energy consumption can also be credited to new technologies and practices that improve year over year.