**Exports: Building Markets**

- The U.S. is the #1 ethanol producer in the world, generating nearly 60% of global output.
- The U.S. exported an estimated 1.62 billion gallons of ethanol in 2018. That’s equivalent to 547 million bushels of corn.

**Top U.S. Ethanol Export Markets**

- **Brazil:** 465 million gallons
- **Canada:** 336 million gallons
- **India:** 166 million gallons

**Waste Not: Ethanol Co-Products**

- Ethanol production uses only the starch in the grain. The remaining fat and fiber are used as high protein animal feed for cattle, hogs, poultry—even fish.
- Many ethanol plants also capture and sell the carbon dioxide that is naturally released during the fermentation process, so it can be used for bottling carbonated beverages or dry ice.

One bushel of corn (56 lbs.) makes:

- 16.4 lbs. of animal feed
- .75 lb. of corn distillers oil (an excellent source of nutrients in animal diets)
- 2.87 gallons of ethanol

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Find a station at MNFuels.com
What is ethanol?
Ethanol is a renewable, plant-based fuel. In Minnesota, most ethanol is produced from field corn, not the sweet corn we enjoy fresh off the cob. Ethanol can also be made from other sugary or starchy crops like sugar cane, wheat, sorghum and potatoes.

How is it made?
1. In the dry milling process, field corn is ground into a coarse flour-like substance.
2. It’s then mixed with water to form a mash.
3. By adding enzymes, yeast and heat, the starchy mash converts to sugar, and then the sugar converts to alcohol.
4. The liquid is then separated from the remaining solids.
5. The liquid, at this point, is now called ethanol and is distilled and denaturated to make it undrinkable.
6. The solids are dried and become a high-protein livestock feed.

Minnesota leads the way in providing better fuel options at the pump. Here’s your guide to cleaner burning and renewable ethanol-blended fuels.

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Ethanol Fuels: The Facts

**E10**
E10 contains 10% ethanol and 90% gasoline. E10 is approved for use in all vehicles and small engines by the Environmental Protection Agency (EPA).
- Minnesota law requires all gasoline sold in the state to contain 10% ethanol.
- All small engine manufacturers approve the use of E10 in everything from lawn mowers to snow blowers.
- Most of the 12 million recreational boats in the U.S. are approved to operate on E10.

**88 Octane**
88 Octane fuel consists of 15% ethanol and 85% gasoline. 88 Octane is approved for use in all model year 2001 and newer vehicles by the EPA—that’s nearly 9 out of 10 cars on the road today.
- 88 Octane has a higher octane rating than regular unleaded and is typically priced lower at the pump.
- Higher octane levels mean more power efficiency.
- More than 300 fuel stations in Minnesota offer 88 Octane.

**E85**
E85 fuel contains 85% ethanol and 15% gasoline.
- E85 is for use in Flex Fuel Vehicles (FFVs) only. FFVs are specifically designed to adjust to any level of ethanol in fuel between zero and 85%.
- Look inside the fuel door for a decal showing that E85 may be used. Automakers also often use yellow fuel caps or external badges to identify a vehicle as a FFV.

Why choose ethanol?
Higher blends of ethanol provide greater environmental and economic benefits. Here’s how:

**Clean: Breathe Easier**
- Using ethanol reduces harmful vehicle and greenhouse gas emissions. That’s why higher blends of ethanol are recognized as a Clean Air Choice® by the American Lung Association.
- According to the U.S. Department of Agriculture, ethanol made from corn helps reduce greenhouse gas emissions by 40-45% compared to gasoline (that’s like removing 11.4 million cars from the road for a year).

**Renewable: Growing Fuel**
- Ethanol is a biodegradable, high-octane fuel made from plants, a renewable fuel source. Ethanol helps reduce our reliance on petroleum—a finite resource.
- The U.S. relied on imports to meet 60% of its petroleum needs in 2005. Growth in ethanol helped reduce our reliance on imports to just 20% in 2017.

**Homegrown: Made in Minnesota**
- From the farm to the fuel pump, the ethanol industry is a vital component of Minnesota’s economy.
- Minnesota’s ethanol industry supports nearly 19,000 full-time jobs in the state and generates more than $1.5 billion in income for Minnesota households.

Find a station. Learn more.
Visit MNFuels.com for a station locator, the latest in ethanol news and events, and more.
Ethanol: Beyond Fuel.

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