

Further Down the Supply Chain

THE CORN INDUSTRY'S COMMITMENT TO SUSTAINABILITY

Ethanol Focus

Corn production has made great strides in sustainability while increasing productivity over the last several decades. While the focus at the front of the supply chain is on continuous improvement for farmers, the same can be seen for those downstream in bioethanol, where innovation from the corn industry continues to be introduced.

Between 1980 and 2015, corn farmers have:



REDUCED SOIL
LOSS PER ACRE BY

58%



IMPROVED IRRIGATION
EFFICIENCIES, LEADING
TO PER BUSHEL
DECLINES IN IRRIGATION
WATER USE OF

46%



DECREASED THE
AMOUNT OF LAND
REQUIRED TO
PRODUCE A BUSHEL
OF CORN BY

41%



IMPROVED ENERGY
USE EFFICIENCY
PER BUSHEL BY

41%



REDUCED
GREENHOUSE GAS
(GHG) EMISSIONS
PER BUSHEL BY

31%

Source: Field to Market Indicators Report, 2016

WHY CORN IN FUEL?

The versatility in corn is highlighted through the bioethanol industry, showcasing two important roles corn can play at the same time.

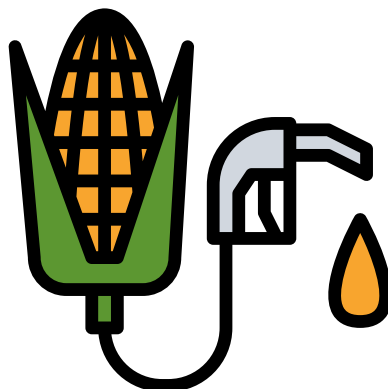
High-Octane, Low Carbon Fuel

Did you know ethanol reduces Green House Gas (GHG) emissions when compared to petroleum-based fuels?

GHG reductions of 44-52%²

Demonstrated commitment to continuous improvement: a 23%³ decrease in carbon intensity in 15 years.

Unlocks increase vehicle efficiency through higher-octane fuels, improving mpg and further reducing GHG.



Feed

Ethanol also produces distiller's dried grains with solubles for use in animal feed as a co-product of production, providing two purposes with one bushel of corn.

Various co-products serve as energy sources for beef, pork, poultry, aquaculture and pet food sectors.

Provides affordable, shelf-stability for feeds, allowing for transport and reduced waste.

Economic option for livestock, pets and aquaculture feeds with continued opportunities for efficiencies in production.

¹ Field to Market: The Alliance for Sustainable Agriculture, 2016 ² U.S. Department of Energy's Argonne National Laboratory

³ 2021 Argonne National Laboratory, Biofuels, Bioproducts and Biorefining published by Society of Industrial Chemistry and John Wiley & Sons, Ltd.

INVESTING IN THE FUTURE

Compared to the petroleum industry, ethanol is still a young industry. Yet, the ethanol industry continues to be committed to evolution.

New technologies being adopted in the ethanol industry add previously untapped processing capabilities and reduce carbon intensity through greater efficiencies and carbon capture, utilization and storage (CCUS).

New capabilities allow ethanol plants to create customized DDGS to meet the nutritional needs of cattle, pork, poultry, pets and a broad range of aquaculture species.

This added technology helps reduce waste, while also meeting animal nutritional needs more efficiently, reducing their overall footprint at the same time.



Gevo operates a biorefinery in Luverne, Minnesota.
PHOTO: Gevo Inc.

THE POWER OF AND

Corn's versatility adds to its availability and affordability making it a smart choice for food AND feed AND fuel AND biobased products. Corn processing continues to find efficiencies and reduce waste.

WHAT YOU GET FROM A BUSHEL OF CORN



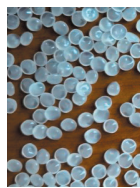
33 LBS.
SWEETENER

OR



31 LBS.
STARCH

OR



22 LBS.
PLA FIBER/
POLYMER

OR



AVERAGE DRY-GRIND ETHANOL PROCESS

2.9 GALLONS
FUEL ETHANOL

0.8 LBS.
DISTILLERS CORN OIL

15.2 LBS.
DISTILLERS DRIED
GRAINS (DDGS)

1.1 LBS.
BIOGENIC CO₂