The United States and the Global Ethanol Market

“Policy With a Role for Trade and Collaboration”

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USDA’s Interest in Biofuels
USDA Programs and Activities Support Industry

USDA Interests
- Advance the biomass economy to support rural communities.
- Report on biofuel markets & demand for grains & oilseeds to support market efficiency.

USDA Programs & Activities
- 2014 Farm Bill Energy Title IX has $694 million in ‘mandatory’ funding (loans & payments) covering crop research & biomass handling technologies for cellulosic fuels, biorefinery redesign to produce advanced fuels and bio-based products, and education. Additional ‘discretionary’ funding supports research. Grants to build market infrastructure to expand delivery of high ethanol blends.
- Office of the Chief Economist supports studies on U.S. biofuels market.
- FAS overseas market promotion to expand ethanol use.
- FAS foreign policy engagement on barriers to trade.
- FAS market reports on the EU and 14 other countries; monthly public, near-term forecasts on US corn & soyoil use in biofuels, and annual internal, long-term projections on foreign biofuel markets.
Key Conclusions

- Well-to-wheel greenhouse gas (GHG) emissions for U.S. corn-based ethanol averaged *43 percent lower than gasoline by 2014* when measured on an energy equivalent basis. This applies to virtually all U.S. ethanol produced today.

- Unlike other studies of GHG benefits, which relied on forecasts of future ethanol production systems and expected impacts on the farm sector, this study reviewed how the industry and farm sector performed over the past decade to evaluate actual performance improvements.

- Reductions in GHG emissions were driven by a variety of improvements spanning the entire production process from the corn field to the refinery.
  - Farmers are producing corn more efficiently and using conservation practices that reduce GHG emissions, including reduced tillage and improved nitrogen management.
  - Corn yields and the efficiency of ethanol production technologies have improved.

- The GHG profile of corn ethanol will be *almost 50 percent lower than gasoline by 2022* if current trends in corn yields, process fuel switching, and trucking efficiency continue.
Strength of U.S. Ethanol Exports
US & Brazil Ethanol Exports to the World

US Shifts from World’s Largest Importer to World’s Largest Exporter

Million Liters

- US Exports to the World
- Brazil Exports to the World

Note: Covers all US non-beverage ethanol (fuel + other industrial ethanol), and all Brazilian ethanol (HS 2207, undenatured + denatured)

Sources: US Data: US Bureau of Census; Brazil Data: SECEX (official government data) sourced thru Global Trade Atlas (IHS Markit)
US Ethanol is the Cheapest Octane on Earth
US Corn Ethanol & Brazilian Cane Ethanol Export Prices

US ethanol has remained and become more price competitive in recent years.
US Ethanol Exports by Destination

Exports Rose After 2010 Once US Market Growth Slowed

Million Liters

[Bar chart showing US Ethanol Exports by Destination from 2003 to 2017, with categories for All Other, Mexico, Peru, EU-28, South Korea, Philippines, China, India, Brazil, and Canada.]

Note: Covers all US non-beverage ethanol (fuel + other industrial ethanol)
Source: US Bureau of Census
The Global Market Offers Opportunity
Global Fuel Ethanol Consumption in 2016
Top US & Brazil Markets Followed by 2nd-tier Mid-size & Smaller Markets

Sources: FAS Global Agricultural Network & OECD/FAO
Car Ownership Surges in Developing Countries

China’s Gasoline Pool Growth Projected to Exceed All Others, Followed by India and Indonesia.

Two Major “Wild Cards” Could Drive Growth
Other Countries Can Also Make Large Contributions

Major “Wild Cards”

- **Brazil**  Commitments made at 2015 climate conference led to “RenovaBio,” a program to decarbonize transportation and increase renewable energy use. With supportive tax policy + large and growing fuel pool, the fuel ethanol market could grow from the current 26 BLs to 40 BLs over the next 10 years.

- **China**  September 2017 plan calls for nationwide blending to rise from current 2.2% (3.5 BLs) to 10% (18.7 BLs) by 2020. This is unreachable, but a serious effort would rapidly increase domestic production and may create a large opportunity for imports.

Other Countries Which Could Create Growth

- **India** Continually falls short of fuel ethanol blend goals due to insufficient sugarcane to support both sugar and ethanol demand, burdensome administration, and restrictive import policy. Reaching the E10 goal would add 3 BLs of demand.

- **Mexico**  Fuel market reform including a new standard for E10 creates opportunity. Small independents are blending minor volumes, but obstacles remain. At E10, current use would be 4.6 BLs countrywide (or 3.8 BLs excluding metros).

- **Canada**  A Clean Fuels Standard is being developed to lower carbon emissions across all fuel streams using carbon markets and carbon intensity requirements. Increased demand is likely, but fuel switching will make projections for specific fuels difficult.
Brazil-US Ethanol Trade
Largest Producers Are Important Trade Partners

Trade Helps Markets Adjust to Weather, Fiscal Policy, Oil Price Changes

US exports rose during Brazil drought, high sugar prices & rising gasoline prices.

Note: Imports from Brazil in early years also include Brazilian product shipped to Caribbean countries, dehydrated, then shipped duty-free to the United States under the Caribbean Basin Initiative to avoid the US 54 cents/gal surcharge that was dropped January 2012.
Data covers all non-beverage ethanol (fuel + other industrial chemicals), US Bureau of Census

Brazil-US Ethanol Trade
Rising Oil Prices, Brazil Fiscal Policy & Low US Ethanol Prices

Sugar Price Spike
Brazil imposes 20% TRQ
US drops 54¢/gal import surcharge
Brazil drops 20% import duty
US 2012 Drought
Sugar Price Spike
Brazil 2010/11 Drought
High Sugar Prices
Brazil-US Market Growth
Rapid US Market Growth

2,400
2,000
1,600
1,200
800
400
0

US Imports from Brazil
US Exports to Brazil


Mil Liters
FAS supports the U.S. ethanol industry in its work with interested countries to avoid false starts in policy development and share best practices to expand the global use of ethanol.

- **Work with industry and government** to develop proven policy supports, including enforced blending mandates and/or tax incentives.
- **Highlight benefits to society** that result from biofuels blending – GHG emissions reductions, improved air quality, and economic advantages throughout the entire value chain.
- **The critical role of trade** that guarantees consistent supply as the domestic industry is developed or in an unfavorable feedstock environment.
- **Offer support** through bilateral working groups, trade missions, technical and policy workshops, and a global alliances.

**Recent Success**

- **Japan** April 2018 Recognized the improved GHG emission profile of US corn ethanol, now permits the use of U.S. ethanol in imported ETBE (ethyl tert-butyl ether).
Thank You ... Any Questions?