



# Ethanol's Growth Path: Output and Export Uncertainties Both Rising

## Key Points:

- Given the sizable expansion in ethanol production capacity and only mediocre growth in demand, a market correction for ethanol is anticipated in the next year to two years. However, this correction will be less severe than that of 2012-13.
- Producers are investing in new technology, making them more cost efficient and enabling greater flexibility to endure prolonged periods of higher costs or lower revenues.
- Many ethanol plants enjoy a very favorable cash position following recent profits. Financially weaker and less efficient producers, though, risk being consolidated. More idling of production – particularly with destination plants – is expected in the next 18-24 months, and aging facilities could be retired.

## Introduction

The ethanol industry is currently in an expansion phase. Blessed with an abundant supply of cheap corn, rising domestic ethanol demand and a quickening export pace, ethanol producers marked strong profits in 2016. Ethanol producers are aggressively reinvesting their profits into the core operations and expanding production capacity via plant expansions and increased efficiencies.

Total ethanol production capacity is expected to grow by 850-900 million gallons by 2020 from 2017's capacity. Profit margins, though, are slimming, driven mostly by falling prices of dried distillers grains with solubles

(DDGS). Ethanol stocks are rising along with production while the outlook for domestic demand and exports for ethanol is seen as slightly positive in the next two years.

With production and stocks expected to outpace demand growth both domestically and in the export market, a period of slim-to-negative margins is in the offing. Ethanol producers with strong balance sheets, efficient plants, discipline with risk management strategies, and access to a reliable corn supply and multiple transportation markets will have the greatest success in weathering the correction.

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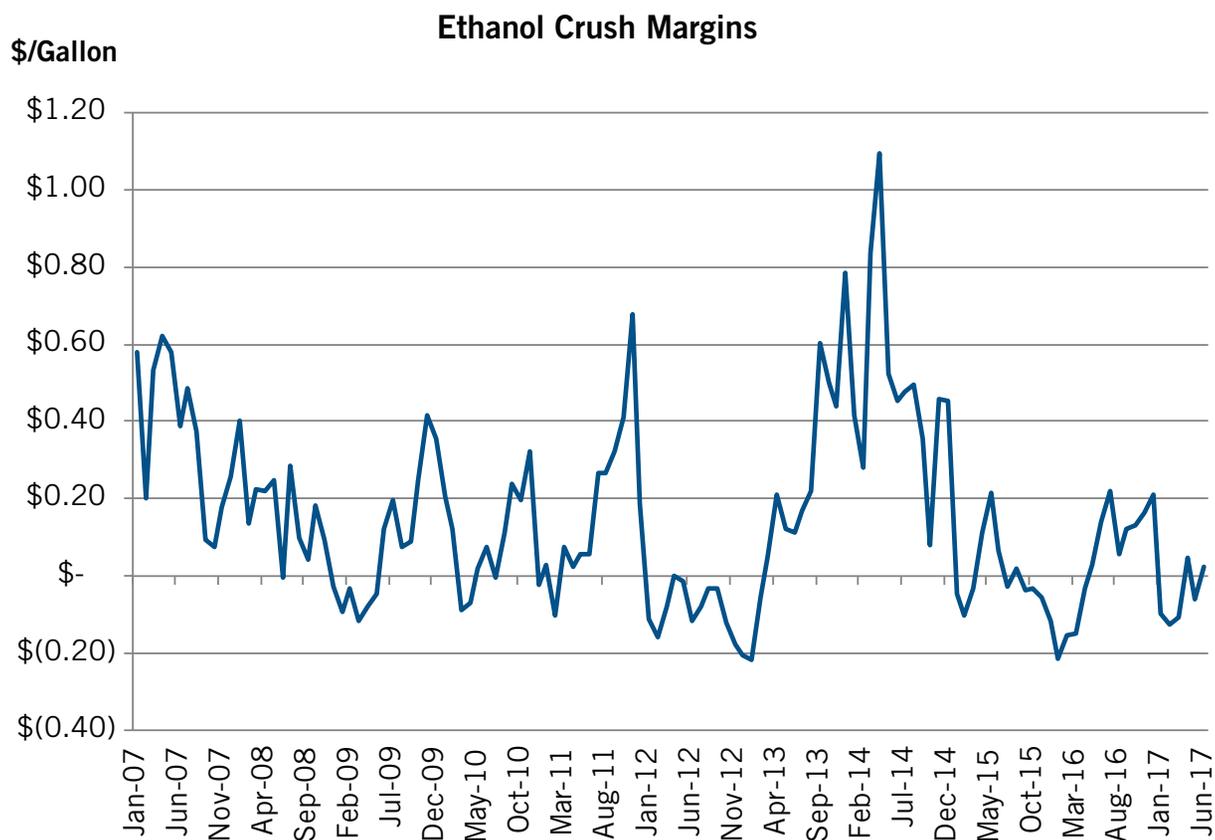
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## Ethanol Crush Margins Have Weakened

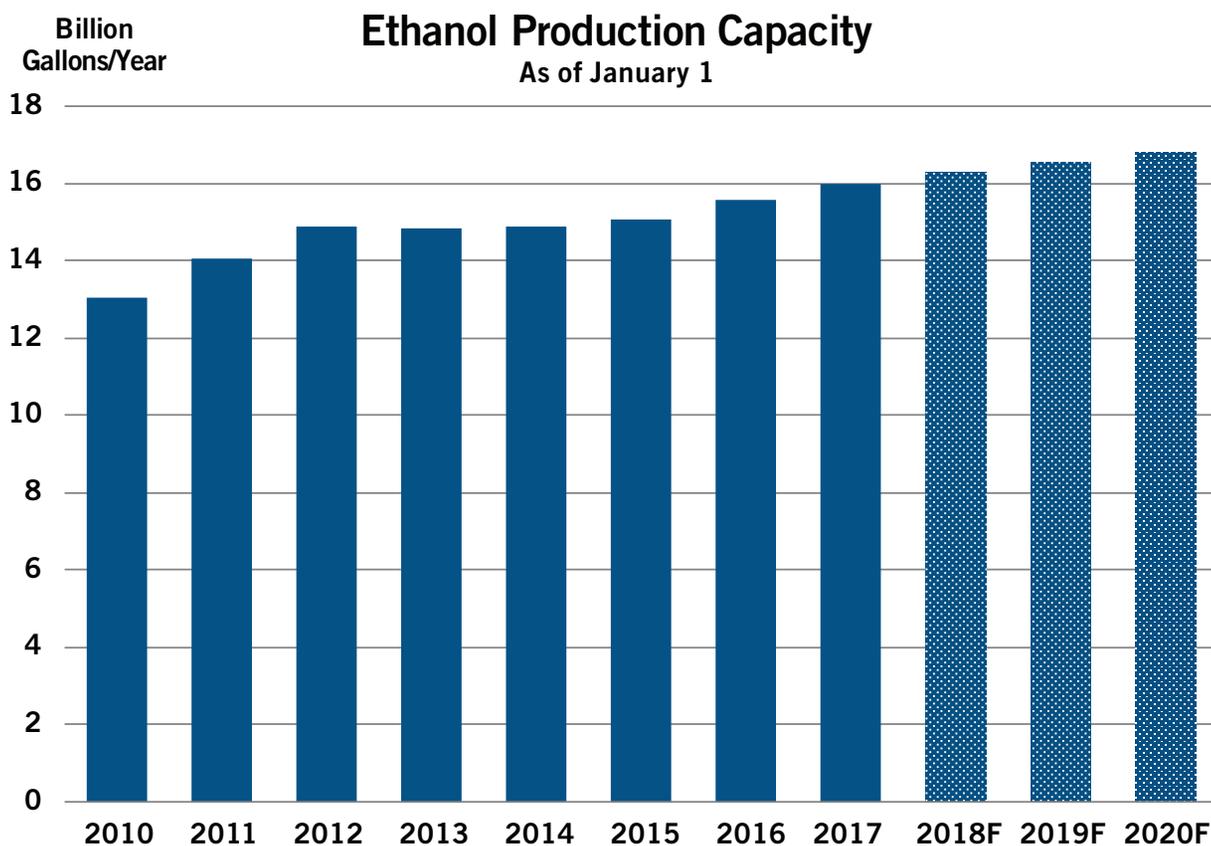


Sources: Iowa State University Extension

Cheap corn prices supported strong ethanol margins and growing profitability in recent years with most ethanol producers now enjoying a very favorable financial position. Ethanol crush margins are in retreat, pulled lower mostly by falling prices of dried distillers grains with solubles (DDGS), which are a byproduct of the ethanol distilling process used

mostly for livestock feed. University of Illinois at Urbana-Champaign estimates ethanol producers averaged a profit of 12 cents/gallon in 2016, up 5 cents/gallon from the year prior. The average net profit in the first half of 2017, however, has fallen to about 1 cent/gallon. Without a material change in the demand base, further erosion in margins is expected.

## Ethanol Production Capacity Has Increased Significantly



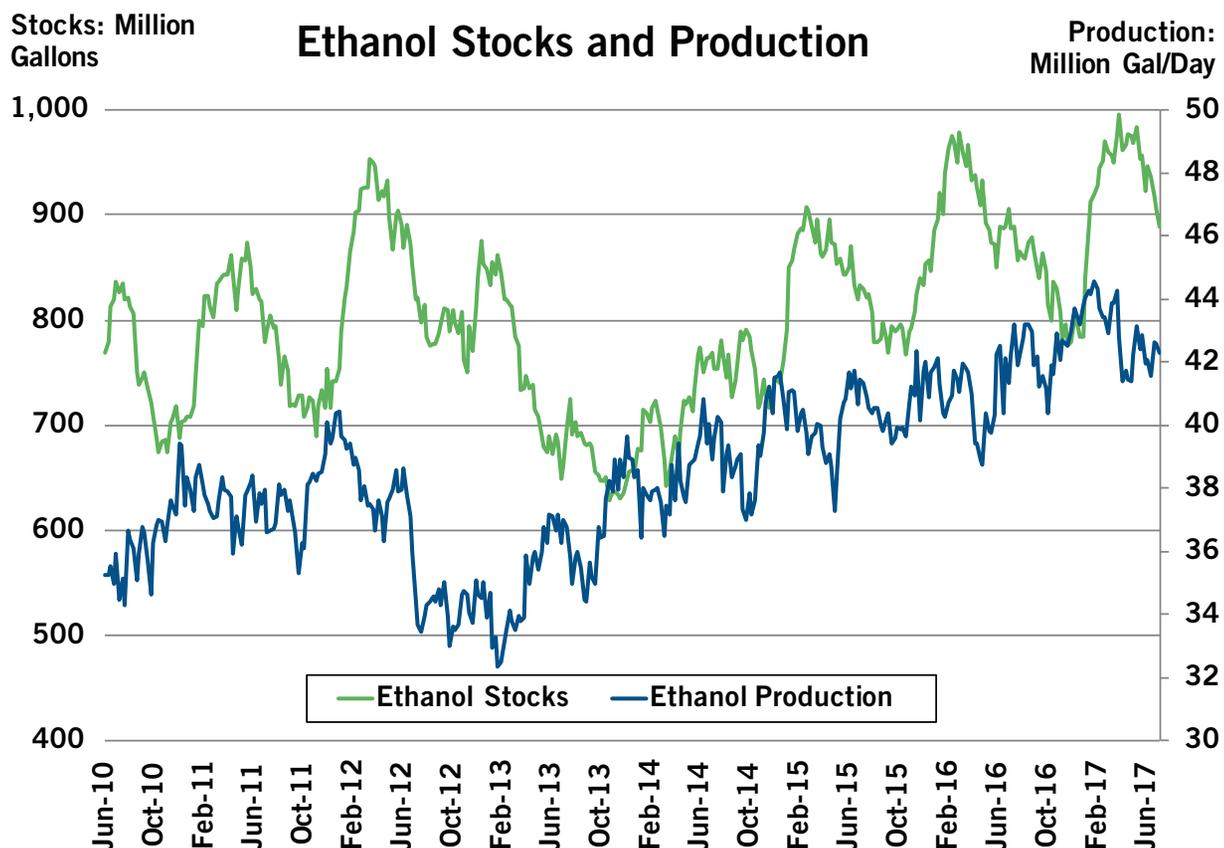
Source: Renewable Fuels Association; CoBank ACB

Ethanol producers reinvested profits into their core operations by expanding capacity through construction of new facilities or reinvesting into existing plants to expand production. Producers have also increased efficiency with new technologies. The average production yield is currently above 2.8 gallons of ethanol per bushel of corn with some producers

nearing 3.0 gallons/bushel with new enzymes and additional technologies that produce more ethanol out of each bushel. Total production capacity from greenfield construction and expansions of existing facilities is expected to grow by 850 million to 900 million gallons from January 2017 to January 2020.



## Ethanol Production and Stocks Continue Their Upward Trend

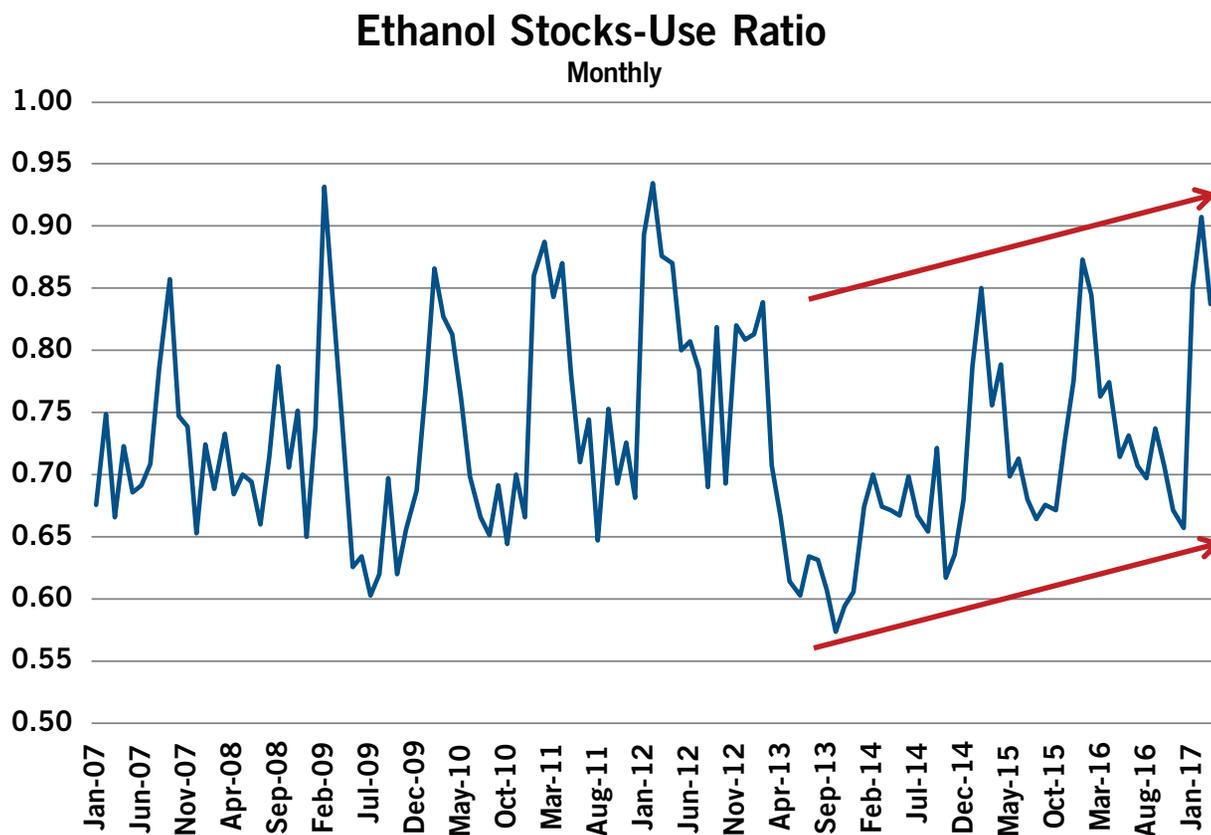


Source: EIA

The increased production pace of ethanol is pushing stock levels to record highs. With new capacity coming on line, production and stocks are both expected to move higher. Continual growth in demand is needed to clear

the market of excess supplies. Otherwise, ethanol prices will correct to incentivize higher usage and exports while discouraging production.

## Ethanol Stocks Relative to Demand are Below Historical Peaks

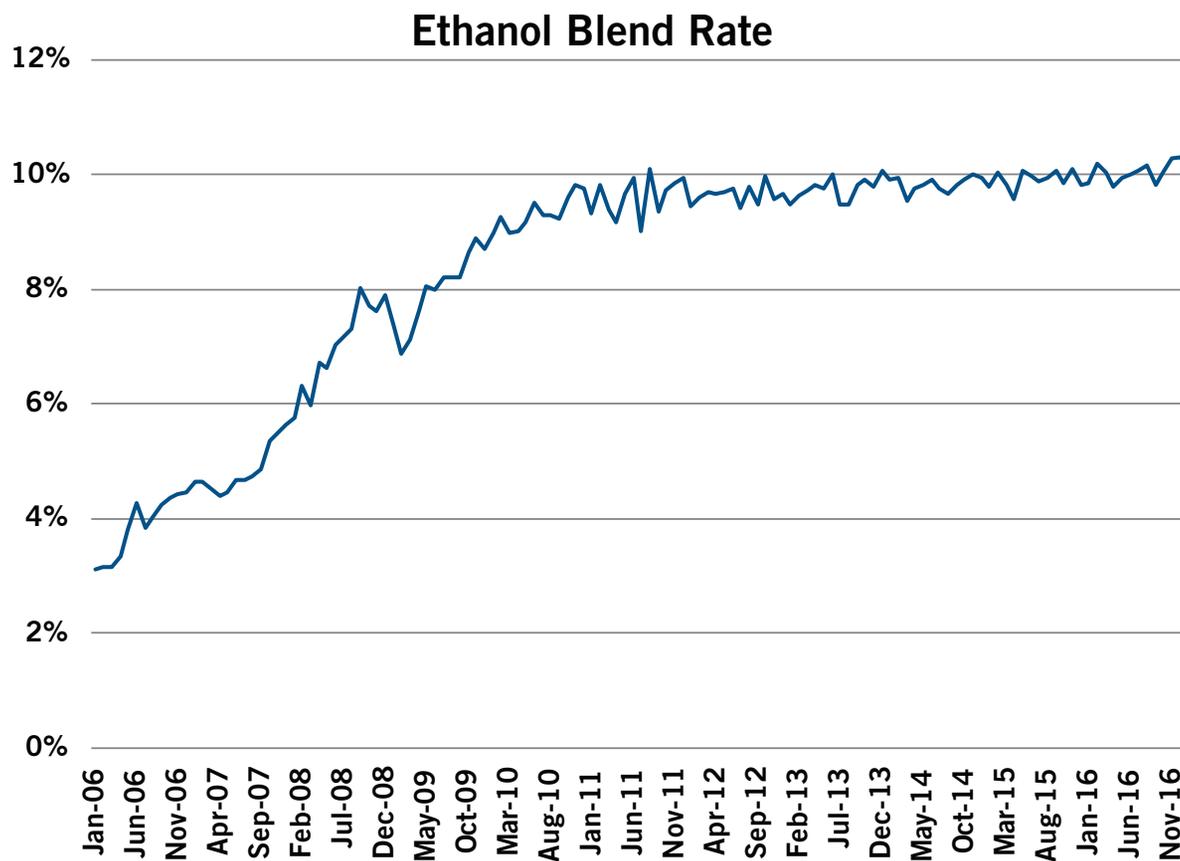


Source: EIA

While ethanol stocks are growing, they remain below previous highs when viewed relative to demand. Record-high U.S. ethanol inventories are still

viewed as manageable by the industry, and curable by upticks in U.S. driving and/or exports.

## Ethanol Blending Rate Edges Higher



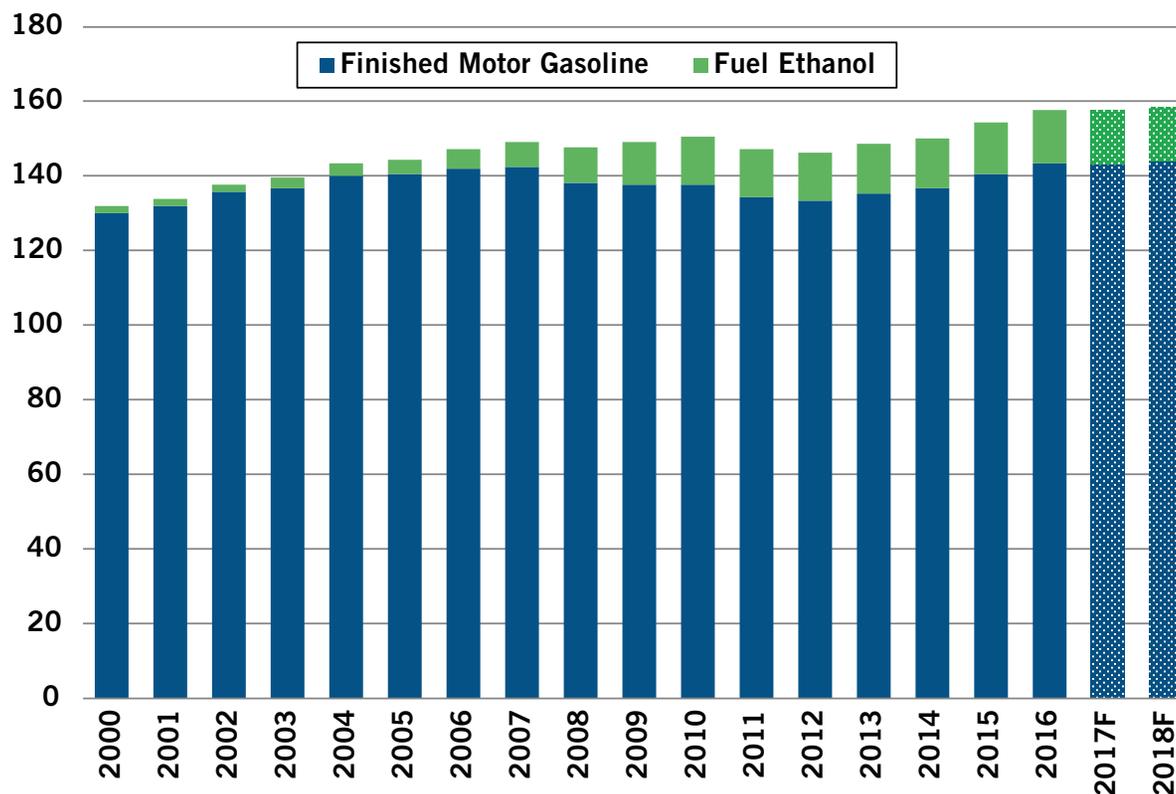
Source: EIA

A bright spot in domestic ethanol demand is the steady, albeit modest, increase of blend rates. While E10 (a 10-percent ethanol blend with gasoline) remains the dominant fuel blend, consumers are increasingly buying higher blends like E15 (15-percent ethanol) because of cheaper prices per gallon at the pump. However, it is becoming increasingly likely

that the Environmental Protection Agency (EPA) will not approve a Reid Vapor Pressure (RVP) waiver for E15 blends during the summer months (E15 is currently not approved for sale from June 1-Sept 15). Refiners are also reluctant to blend higher rates since rising ethanol sales cut deeper into their market share of petroleum fuel – their key product.

## Fuel Demand Has Been Spurred by Lower Prices, but Challenges are Ahead

### Billion Gallons U.S. Gasoline and Ethanol Demand

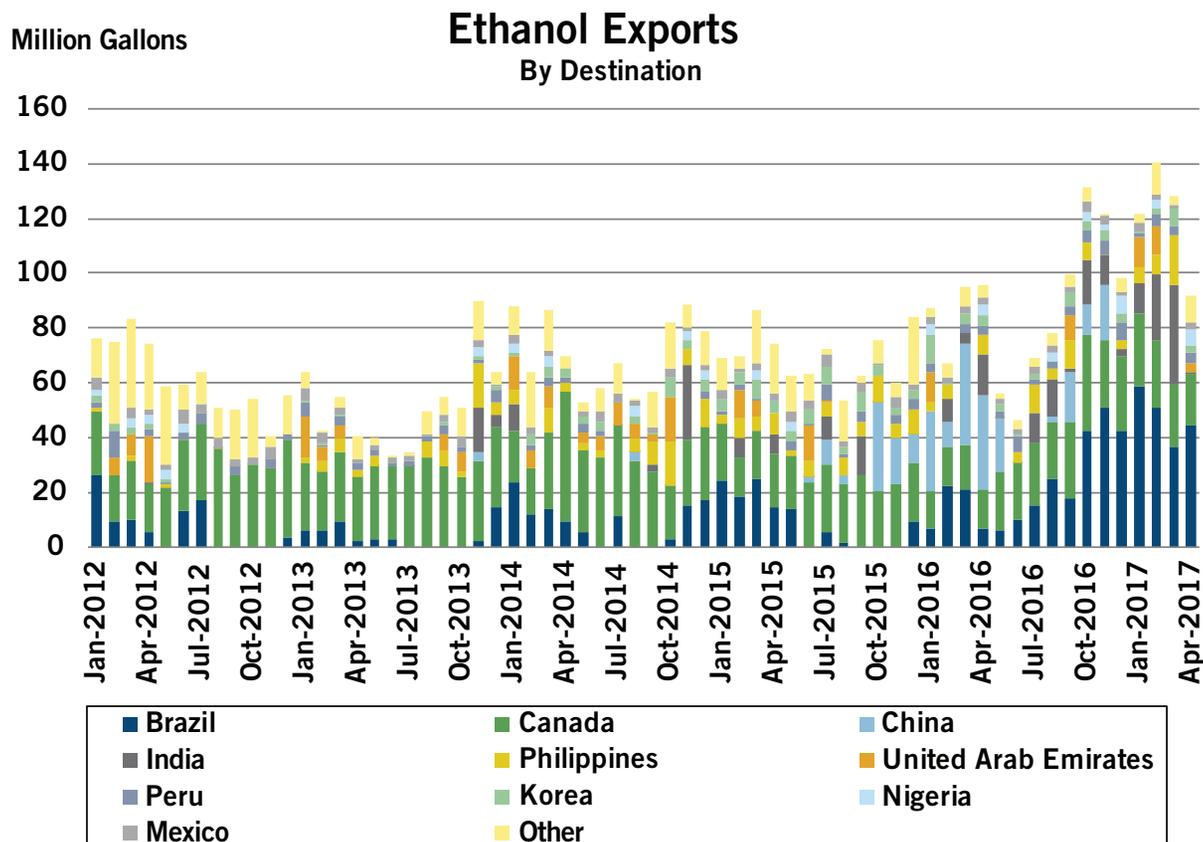


Source: EIA

Demand for gasoline and ethanol has grown appreciably since 2014 with affordable fuel prices spurring usage among drivers. But long term, per capita consumption is expected to erode as drivers increasingly switch to electric cars and fuel efficiency increases. The rise of ride-sharing services

is also hurting car and truck sales, and could cut into fuel use. Rising ethanol production and stocks – matched with the prospect of declining use in the future – places greater emphasis on export growth.

## Strong Ethanol Exports Have Aided Margins but Growing Them Further Will be Difficult

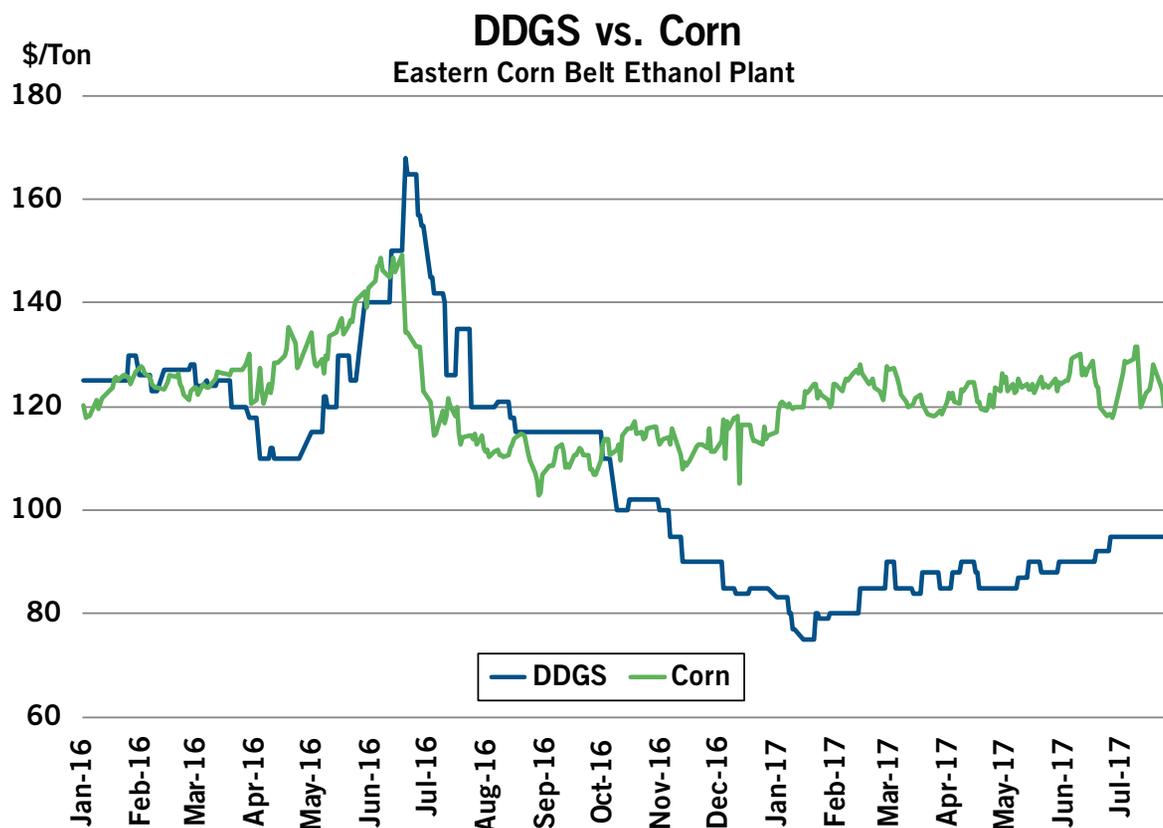


Source: EIA

The expansion of export markets has been a success story for the ethanol industry. Efforts to grow export sales further, however, will come with challenges. U.S. ethanol producers lost the Chinese export market when China's government enacted a 30 percent tariff on U.S. ethanol in early 2017. Brazil, the largest importer of U.S. ethanol, is also taking steps to reduce ethanol imports as sugar prices decline and refiners there shift back to ethanol production. As a result, U.S. ethanol producers will look

to increase exports to markets like India, Mexico, Thailand and Indonesia, where governments are seeking to improve air quality. Mexico in particular is expected to be a growth market in the near term. Mexico's Energy Regulatory Commission recently announced it will raise the maximum amount of ethanol that can be blended into gasoline to 10 percent, up from 5.8 percent. Major metro areas, including Mexico City, Monterrey and Guadalajara, however, were exempt from the change to higher ethanol blends.

## The Abundance of Feed and Slump in DDGS Prices Have Hurt Ethanol Producers

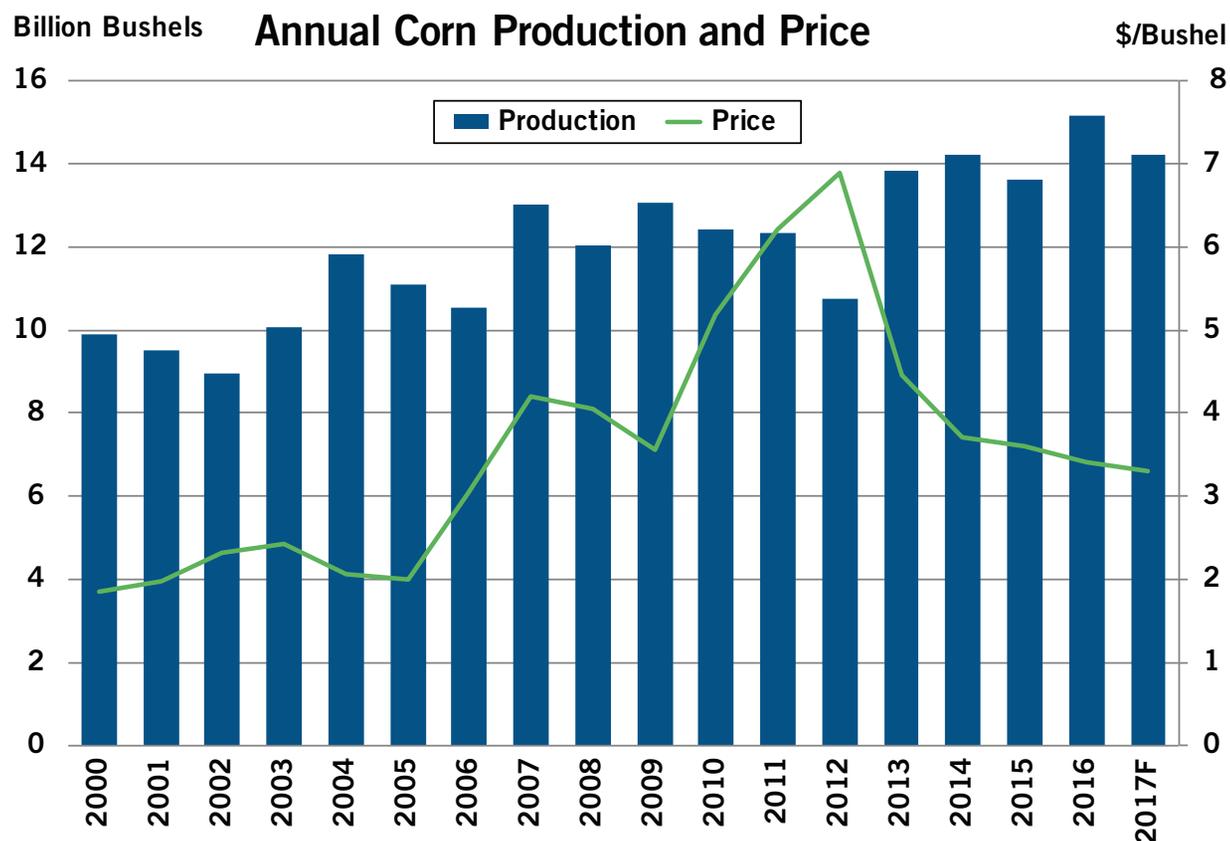


Source: USDA-AMS

DDGS prices are down significantly compared to corn prices and are the key factor in the erosion of crush margins. This is particularly true in Eastern Corn Belt regions where corn quality issues have impacted the quality of DDGS. Nationwide, DDGS supply is up as ethanol producers run at record capacity, all while having to compete in a glutted feed market. The loss of the Chinese export market also took its toll after China imposed an anti-dumping tariff on U.S. DDGS in January. In 2016, 22% of U.S.

DDGS exports went to China, Mexico took 16%, Vietnam imported 11%, and South Korea accounted for 8%. Efforts to regain the Chinese market will be arduous since negotiations through the World Trade Organization (WTO) take up to five years. DDGS prices will likely remain under pressure as competing feed supplies remain ample and the Chinese anti-dumping tariff remains in place.

## Corn Prices are Expected to Remain Low, Partially Offsetting Other Negative Factors



Source: USDA-NASS

Year in and year out, the price of corn generally is the greatest profit risk to ethanol producers. USDA is expecting the corn balance sheet to tighten modestly for the 2017-18 marketing year as the crop size shrinks. But with large carryover stocks, price movement will be limited. Barring a

severe turn in weather causing a major crop failure, supply issues will be mostly localized. Of greatest concern is the Northern Plains region that currently is experiencing serious drought.

## How steep will a correction be?

- Given the sizable expansion in ethanol production capacity and only mediocre growth in domestic demand and exports, a market correction for ethanol is anticipated in the next year to two years. However, this correction is not expected to be like prior corrections, such as 2012-13 when ethanol producers felt the pain of \$7/bushel corn and production was significantly curtailed.
- The industry since then has developed a greater level of discipline. Producers have shown they are more willing to curtail production when margins shrink. With investments in new technology, producers will be leaner and more cost efficient, enabling greater flexibility to endure prolonged periods of low ethanol and DDGS prices, or higher corn costs.
- Many ethanol plants enjoy a very favorable cash position following recent profits, thereby enabling them to survive longer periods of negative margins. Financially weaker and less efficient producers, though, risk being consolidated. More idling of production – particularly with destination plants – is expected in the next 18-24 months, and aging facilities could be retired.

## Who will prosper through a downturn?

- Companies that are well capitalized.
- Ethanol producers who have access to a reliable local corn supply.
- Plants that have access to multiple transportation markets (i.e., river, rail and truck transit) that give them more marketing flexibility with both ethanol and DDGS.
- Producers who have invested in efficient technology and are producing more than 2.8 gallons/bushel.
- Those who have become wiser to the vagaries in the market during the last correction and are disciplined with production and marketing.

### Citations

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