ETHANOL: Cleaner Air. Affordable. Fuel everyone can use.
Ethanol: Yesterday, Today and Tomorrow

ROGER BERRY
ADMINISTRATOR, NEBRASKA ETHANOL BOARD
Today’s Agenda

1. Yesterday - Quick overview of where ethanol was at prior to COVID-19.
2. Almost today – Explore the factors that have weakened the ethanol industry in the past few years prior to COVID-19.
3. Today - Where does the ethanol industry stand today?
4. Tomorrow - Is the future promising for Nebraska ethanol?
• 25 ethanol production facilities in Nebraska.
• Nebraska plants have the capacity to produce 2.6 billion gallons of ethanol.
• 204 ethanol production facilities in the U.S.
• Nationally we have the capacity to produce 16.542 billion gallons of ethanol.
• In 2019 Nebraska produced 2.1 billion gallons using over 700,000,000 bushels of Nebraska corn. This equates to 35.3% of the total corn grown in Nebraska in 2019.
• Nationally ethanol consumed 5.9 billion bushels of corn.
Economic Impacts of the Nebraska Ethanol and Ethanol Co-Products Industry 2015 - 2017

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Bureau of Business Research
College of Business
University of Nebraska-Lincoln
Highlights

Ethanol Production - 2.076 billion gallons

Value of Ethanol Production - $2.872 billion

Total Value - $3.764 billion

Employees - 1,453 full-time equivalents (FTEs)

Labor Income - $109 million

Indirect Business Taxes - $13 million
Overall Economic Impact (2017)

Employment - 5,166 FTEs

Total Labor Income - $370 million

Total Output - $4.154 billion
Almost today

What factors started to weaken the ethanol industry prior to COVID-19?

• Small Refiner Exemptions
• Trade
# Table 2: Summary of Small Refinery Exemption Decisions Each Compliance Year

<table>
<thead>
<tr>
<th>Compliance Year</th>
<th>Number of Petitions Received</th>
<th>Number of Grants Issued</th>
<th>Number of Denials Issued</th>
<th>Number of Petitions Declared</th>
<th>Number of Petitions Withdrawn</th>
<th>Number of Pending Petitions</th>
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<td>16</td>
<td>8</td>
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<td>8</td>
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<td>31</td>
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<tr>
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<td>0</td>
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<tr>
<td>2020</td>
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<td>0</td>
<td>1</td>
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<td>Compliance Year</td>
<td>Estimated Volumes of Gasoline and Diesel Exempted (million gallons)</td>
<td>Estimated Renewable Volume Obligations (RVO) Exempted (million RINs)</td>
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<td>2013</td>
<td>1,980</td>
<td>190</td>
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<td>2,300</td>
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<td>2018</td>
<td>13,420</td>
<td>1,430</td>
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Introducing uncertainty in the industry and an industry that was over built.

Bushels of corn not used for ethanol due to these exemptions – 1,442,857,143
WHERE IS U.S. ETHANOL GOING?
Top U.S. Export Customers in Marketing Year 2018/2019

Dollar Amount

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Dollar Amount</th>
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<tr>
<td>1</td>
<td>Brazil</td>
<td>$579 million</td>
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<tr>
<td>2</td>
<td>Canada</td>
<td>$558 million</td>
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<tr>
<td>3</td>
<td>India</td>
<td>$357 million</td>
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<tr>
<td>4</td>
<td>European Union</td>
<td>$188 million</td>
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<td>5</td>
<td>South Korea</td>
<td>$144 million</td>
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</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>Gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>301,111,991</td>
</tr>
<tr>
<td>Canada</td>
<td>291,765,940</td>
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<tr>
<td>India</td>
<td>282,044,915</td>
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<td>European Union</td>
<td>127,514,845</td>
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<tr>
<td>South Korea</td>
<td>91,613,390</td>
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<td>Philippines</td>
<td>75,044,191</td>
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<td>Colombia</td>
<td>44,020,041</td>
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<td>Peru</td>
<td>47,771,885</td>
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<td>United Arab Emirates</td>
<td>52,776,183</td>
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<tr>
<td>Mexico</td>
<td>33,731,498</td>
</tr>
</tbody>
</table>

Weekly Gasoline Demand

Data: EIA

5-Year Average

8.96

8.57

Today
Weekly Ethanol Production

Data: EIA

5-Year Average

Today
Today

Ethanol Stocks

Millions of Barrels

- 2020
- 2019
- 5-Year Average

Months:
- Jan
- Feb
- Mar
- Apr
- May
- June
- July
- Aug
- Sep
- Oct
- Nov
- Dec

Values:
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25
- 26
- 27
- 28

2020:
- 27.69
- 24.19

2019:
- 21.37
- 21.03

5-Year Average:
- 21.03
Corn Use for Ethanol

Data: USDA

Today
Weekly (Friday) Ethanol Price at Iowa Plants
01/26/2007 to 5/15/2020

Source: AMS/USDA
As of May 19, 2020, only 60 of the nation’s 204 ethanol plants were running at normal output rates, with the remaining 144 either completely or partially idled. More than 40 percent of the country’s ethanol production capacity remains offline.
The worst of plant closures and cutbacks occurred at the end of March and into the first part of April. In that timeframe Nebraska had 11 of its 25 ethanol plants idled and another 3 running at reduced capacity. This resulted in 42% of production capacity being off-line.
As of May 26, 2020 Nebraska has 7 plants idled and 2 at reduced production. This has improved the amount of production capacity off-line to 32.5%.
Is the future promising for Nebraska ethanol?

- What will the federal government do?
- Opportunities to build out fuel infrastructure.
- What personal decisions will you make?
  - Will you allow people to believe the outright lies
  - Will you allow yourself to believe the outright lies

- A lot of opportunities
  - Bio-campuses
  - Low carbon fuel standards
  - High efficiency automobiles (ICE)
  - Clear Flame Engine Technologies
  - Exports
E15 and the opportunities for you

Additional Gallons of Ethanol for each percentage point above E10

(Results are based on the average yearly liquid fuel use of 142 billion gallons)

E10 = 14.2 billion gallons of ethanol = 5.07 billion bushels of corn
E11 = 15.6 billion gallons of ethanol = 5.58 billion bushels of corn
E12 = 17.0 billion gallons of ethanol = 6.09 billion bushels of corn
E13 = 18.5 billion gallons of ethanol = 6.59 billion bushels of corn
E14 = 19.9 billion gallons of ethanol = 7.10 billion bushels of corn
E15 = 21.3 billion gallons of ethanol = 7.61 billion bushels of corn

Difference between E10 and E15
7.1 billion gallons of ethanol
2.54 billion bushels of corn
(there's your carry-over plus a little)
The ethanol industry works very closely with the U.S. Grains Council on exports.

Markets with ongoing programs include Brazil, Canada, India, China, Japan and Mexico.

These efforts are paying off. In 2018/2019 1.55 billion gallons of U.S. ethanol – 548 million bushels in corn equivalent – were exported to 69 countries.
Thank You!

Questions?

Contact Roger at 402-471-2941 or Roger.Berry@Nebraska.Gov