Corn, Carbon, and COVID -
Challenges and Opportunities for Agriculture after 2020

David Ripplinger
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2020’s Short and Long-term Impacts on Agriculture and Energy

Economic and Social Disruption
Economic Recovery

Energy Transition
Covid as Accelerator
Changing priorities
Ethanol – Key Factors

Short and Long-term Uncertainty Domestic Gasoline Demand
Permanent Plant Retirement (Shuttering)
Lower Corn Supplies
US Ethanol Days in Storage, 2019/2020

Data: EIA
Ethanol - Points

Renewable Fuel Standard

Small Refinery Waivers –

If 15 billion gallons is the number and gasoline use doesn’t increase – then we’ll need higher blends E15
California Low Carbon Fuel Standard

California has assumed international leadership

Nation’s largest transportation fuel market (~10% of the total)

Goal: Reduce the Greenhouse gas emissions associated with transportation

Uses a Cap and Trade system

Works, legally tested, “built” and is serving as a model for other states and nations
Cap & Trade

Beyond setting strict limits on emissions, the establishment of cap & trade systems

- Limit undesired behavior or outcomes
- Allow firms to find the best solutions
  - which could be trade alone
  - but could also be innovation!
The Price of Carbon

The price of carbon credits has averaged $200 per MT for the last two years.

A one percent reduction in GHG emissions can in result in the “creation” of credits equal about 1¢ per gallon.
LCFS Impacts: US Corn Ethanol

Increased demand, as it is a low-carbon fuel (although still almost universally marketed as E10)

Major investments in carbon and energy reducing technology
LCFS Future Impacts

There is tremendous interest in modeling feedstock emissions (read corn ethanol).

Building even stronger relationships between ethanol refiners and feedstock suppliers (corn farmers)

Businesses don’t compete, supply chains compete

Revisiting a variety of advanced biofuel pathways
Given the high price of carbon, there are projects across the globe looking at ways to capture use/sequester carbon.

Among the highest profile is Project Tundra that is looking to manage carbon emissions from MinnKota Power’s Milton Young Station.

Blue Flint Ethanol (near Underwood) is looking to do the same as is Red Trail Ethanol.
Renewable Diesel

The recent price of renewable diesel in California is _______.

Renewable diesel is biofuel produced using various bio-based feedstocks (vegetable oil, grease, fat) and traditional crude oil refining processes.

Meets diesel spec. Has an extremely low carbon footprint.
How to Get Rid of Carbon Emissions: Pay Farmers to Bury Them

‘Regenerative growing practices’ sequester in the soil carbon released from burning fossil fuels

The trade war with China is putting a strain on the U.S. agriculture industry. WSJ's Jason Bellini sat down with a group of farmers from the corn, beef, soybean, and dairy industries to hear how tariffs are affecting their businesses.

By Greg Jin
Sept. 11, 2019 10:24 am ET

Wall Street Journal, September 11, 2019
Definitions

**Ecosystem Services** – benefits from interactions between people other organisms and the environment. Includes a variety of products such as food, fuel, and fiber; services like recreation and tourism, as well as carbon sequestration and erosion control.

Ecosystem Service Markets – an institution where goods and services are bought and sold.
Chart 1
Breakeven for New Wells Averages Just Below $50 Per Barrel in Dallas Fed Survey

NOTES: The question posed to executives was: "In the top two areas in which your firm is active, what WTI oil price does your firm need to profitably drill a new well?" Lines show the mean, and bars show the range of responses. Executives from 92 exploration and production firms answered this question during the survey collection period, March 11–19, 2020.
SOURCE: Federal Reserve Bank of Dallas.
Shut-in Prices for Existing Wells

Dallas Fed Energy Survey—In the top two areas in which your firm is active: What WTI oil price does your firm need to cover operating expenses for existing wells?

NOTES: Line shows the mean, and bars show the range of responses. 95 E&P firms answered this question from March 11-19, 2020. SOURCE: Federal Reserve Bank of Dallas.
ND Monthly Oil Production and Rig Count

Data: EIA

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Crude Oil Crack and Spring 2021 Diesel

Gasoline and diesel demand has recovered since the spring, but jet fuel has not. This fuel is being refined to diesel distillate raising supplies.
What next?

When/how do incomes of marginalized labor force recover?

What priorities/consensus (if any) will Washington have in 2021?

Will the dollar weaken and if so will commodities and agriculture benefit?

How does ND take advantage of carbon/ecosystem service markets?
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