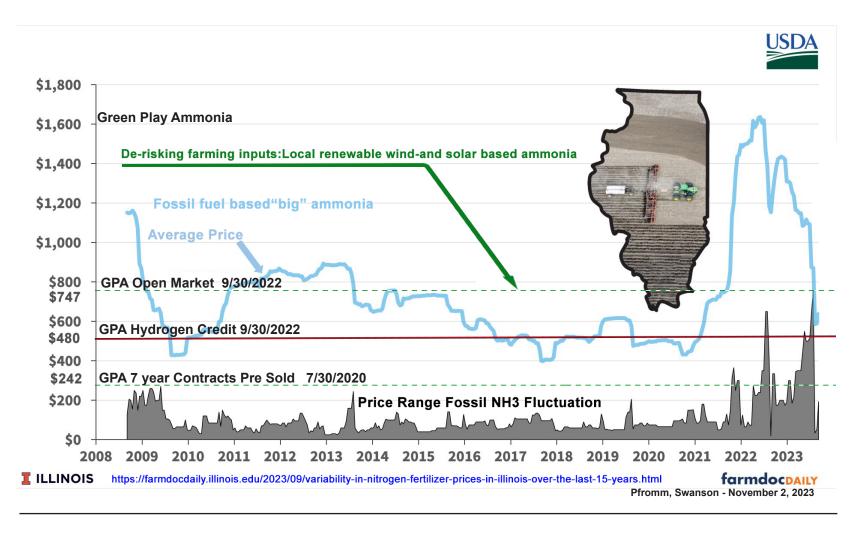
## **Ethanol and Ammonia Charts of Significance**

Update on Ethanol in the Business Plan for Trucks and Engine Fueling, Ethanol plants to match the new ethanol engines of Clear Flame Engines, 325 hp at 15 liter, Cummins Hydrogen engines, and Toyota Ammonia engines.

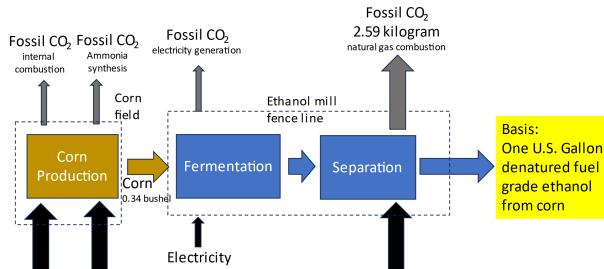
- Cattle feeding to be considered for Carbon Score as Grass and Corn Feed Beef on Prairie Lands of the Great Plains.
- Dairy to also be considered. Especially a consideration with green canola crush and milk production.

It is important to have level pricing for years to protect land values and profits with Exactrix applying at .6 of the University Standard. TAPPS and TAPPKTS plus Zinc, can be applied at a 75% reduction in fossil carbon.

Allowing Fossil Fuel to dominate agriculuture production costs is not going to happen...The problem is simply stated, "A business opportunity of extreme value for North America to be competitive. Zero Carbon inputs are required over the next 30 years."



## Ethanol Production with Fossil Fuel



FossilFossilfuelsfuelsfuels(pumps, blowers,<br/>DDG separation,<br/>production)Image: DDG drying?,<br/>general operations)DDG drying?,<br/>general operations)

Natural Gas 0.94 kilogram or 34,000 BTU Dr. Pe (fossil) Nover

Dr. Peter Pfromm, WSU November 10, 2023

## Ethanol and fueling with Green Ammonia.

Goals to be completed and numbers generated.

- Carbon Score of irrigated Corn as it leaves the Green Play Ammonia Exactrix (.6) applied field.
- · Carbon Score of Distillers Grain headed to pellet mill for Stocker Feeder Market on Grasslands.
- How will the demand for Greener Ethanol change?
- Boiler upgrades required? Can we phase in the digersters in 20% increments of NH3 and H2 in dual fuel without changing the boilers.

2023 projects/ethanol and ammonia charts 11/17/2023