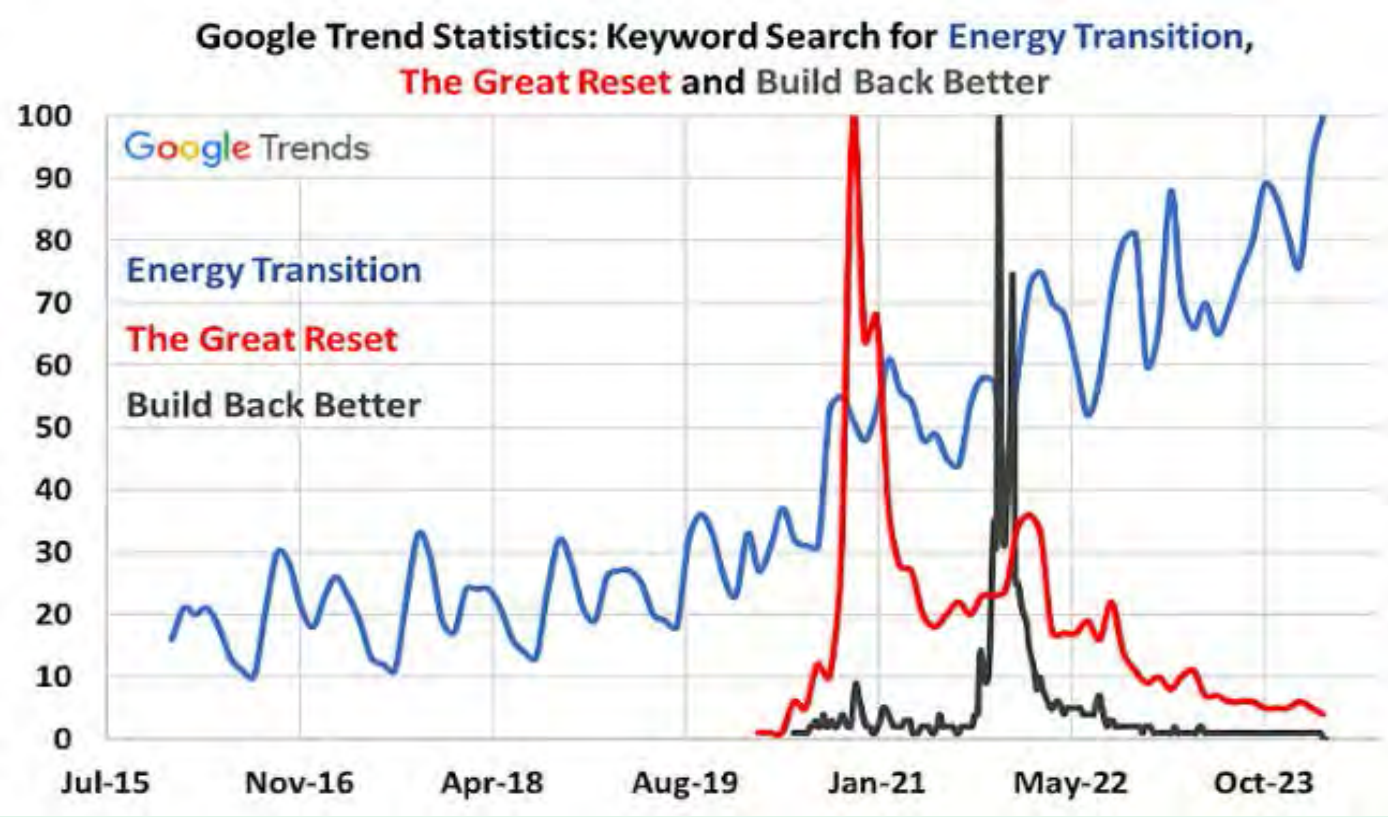
Food Prices, Farming and Net Zero Ideology

Presented by Dr. Joseph Fournier

September 25, 2025 7 PM
Best Western Village Park Inn Calgary, AB

FRIENDS OF SCIENCE .org

The Great Reset, Build Back Better, The Energy Transition (Net Zero)

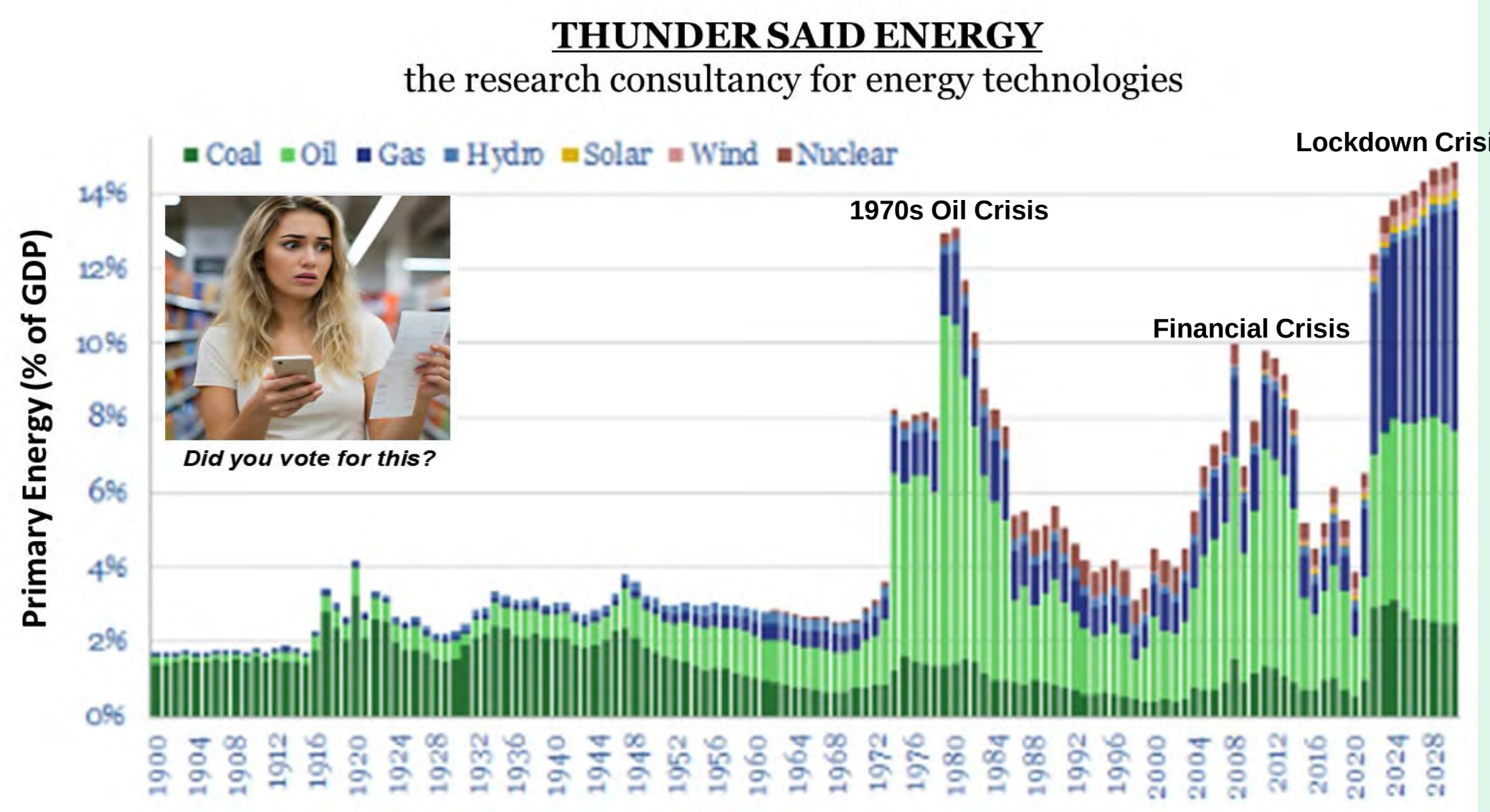


Did you vote for this?

It is well established that these synonymous monikers originated within the World Economic Forum (WEF) and the US Biden Administration.

In 2020, the WEF and heads of G7 States declared in unison that the lockdowns represented a great opportunity to reset global capitalism, that the net-zero energy transition was how the world would *build back better* and that transforming food systems was vital.

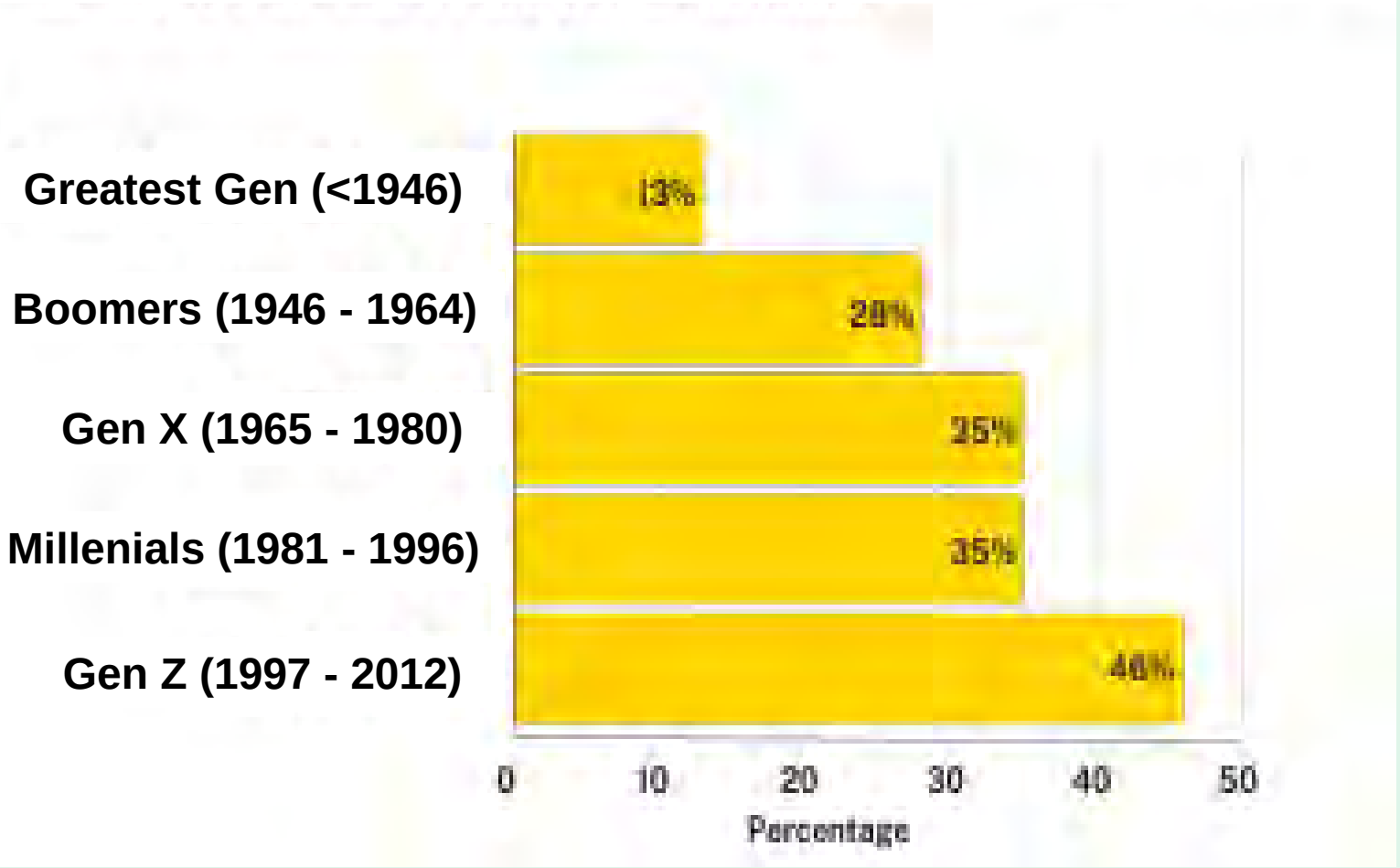
Cost of Primary Energy and the Great Reset



The Great Reset or Energy Transition or Net Zero is defined by energy inflation.

Affordability Crisis & Rising Food Supply Insecurity

Percentage of Respondants Drawing from Savings or Borrowing Money to Purchase Food per Generation



Canada's Food Price Report 2025

"Our relationship with food is changing as we pay more attention to food prices than ever before, shifting our behaviors around purchasing and consumption."

Net Zero ideologies and their head on collision with food supplies

"Sudden And Unexpected" @toobaffled · Aug 13

Something strange is happening in Denmark. Farmers are reporting their cows are falling ill—and refusing to eat their feed. But this isn't just any feed. It contains Bovaer, a new synthetic additive designed to reduce methane emissions by disrupting the digestive system of

Show more

APR 21, 2025

THE DARK SIDE OF BOVAER: ARE COWS AND HUMANS AT RISK?

BY KATHRYN KOS, M.ED, NTP

Irish farmers say they will be forced to cull cows to meet climate targets

Government plan to cut agriculture emissions by 25% by 2030 will drive many farms into bankruptcy, say critics

NEWS ARTICLES | 22 March 2023

EU livestock population continued to decline in 2022

The EU has a sizeable livestock population: in November/December 2022, there were 134 million pigs (-5% compared with 2021), 75 million bovine animals (-1%), 59 million sheep (-2%) and 11 million goats (-3%).

nature food

Explore content · About the journal · Publish with us · Subscribe

nature › nature food › articles › article

Article | Published: 09 February 2023

Greenhouse gas emissions from nitrogen fertilizers could be reduced by up to one-fifth of current levels by 2050 with combined interventions

Yunhu Gao & André Cabrera Serrenho

Nature Food 4, 170–178 (2023) | Cite this article

13k Accesses | 178 Citations | 1006 Altmetric | Metrics

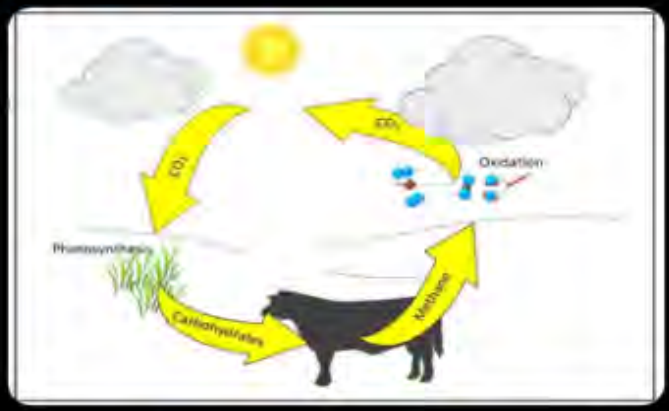
Jonatan Pallesen @jonatanpallesen · Aug 13

The price of beef here in Denmark has risen by more than 70% over the last few years, and is now at about $20 per kg.

A main reason is a large greenhouse gas tax imposed by the Danish government, that especially hits beef, due to the methane emissions from cows.

But this is a

Show more



73 · 132 · 1K · 59K

Countering Food Supply Chain Naivety that is Net Zero

Knowledge is the best antidote to the disease of Group-think

Presentation Themes:

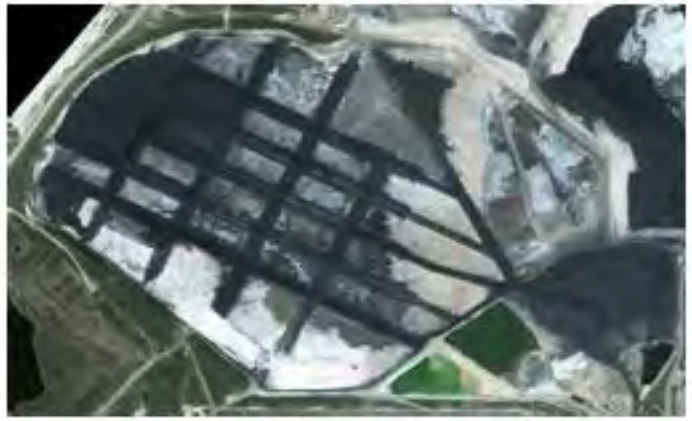
1. **Hydrocarbons and the internal combustion engine are largely responsible for the modern era (i.e., population growth, technology boom).**

2. **Only a small fraction of the *calories* in the food-supply-chain are derived from photosynthesis - the remaining is from hydrocarbons.**

3. **Canada's Boreal Forest methane emissions are largely ignored, but dwarf those from our agricultural sector and oil & gas industry.**

4. **The 20th Century Green Revolution - a productivity boom and massively reduced landuse requirements.**

Aerial photos of Pond 5; left: June 1, 2009 and right: April 6, 2010



Pond 5 aerial photo (May 14, 2011)

Photo of a CAT 631E dumping and spreading coke at the edge of a pond road

Research Scientist & Project Lead
Suncor Pond 5 Reclamation

Three year project, which built a 10 million tonne floating cover on top of a 110 hectare oil sands tailing pond.

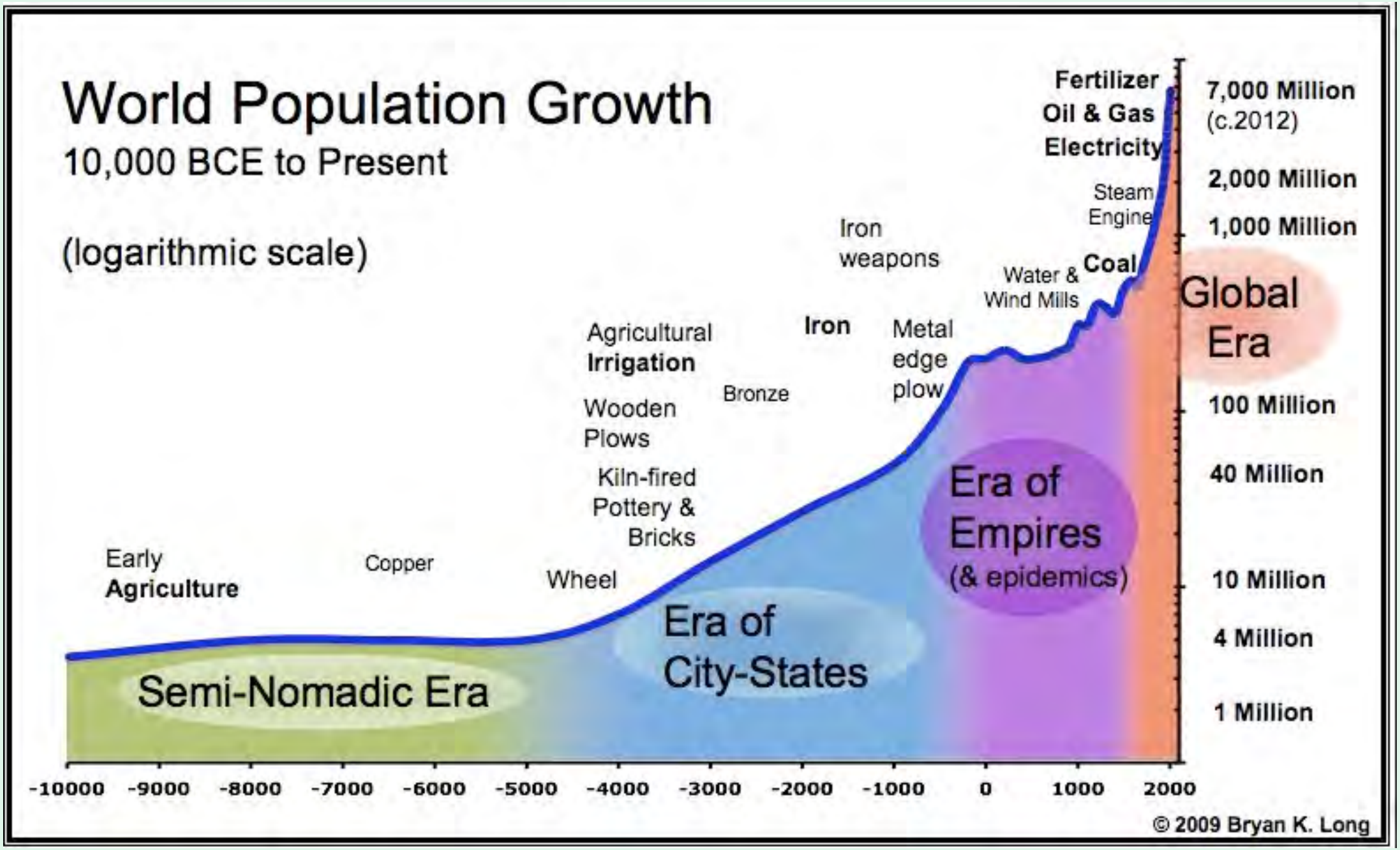
The floating cover was used facilitate subsequent drilling rigs that installed vertical wick drains to dewater the tailings beneath the structure.






The Fournier Funny Farm




World Population Growth
10,000 BCE to Present
(logarithmic scale)
Fertilizer
Oil & Gas
Electricity
Steam Engine
Iron weapons
Coal
Water & Wind Mills
Iron
Metal edge plow
Agricultural Irrigation
Bronze
Wooden Plows
Kiln-fired Pottery & Bricks
Wheel
Copper
Early Agriculture
Global Era
Era of Empires (& epidemics)
Era of City-States
Semi-Nomadic Era
7,000 Million (c.2012)
2,000 Million
1,000 Million
100 Million
40 Million
10 Million
4 Million
1 Million
-10000
-9000
-8000
-7000
-6000
-5000
-4000
-3000
-2000
-1000
0
1000
2000
© 2009 Bryan K. Long

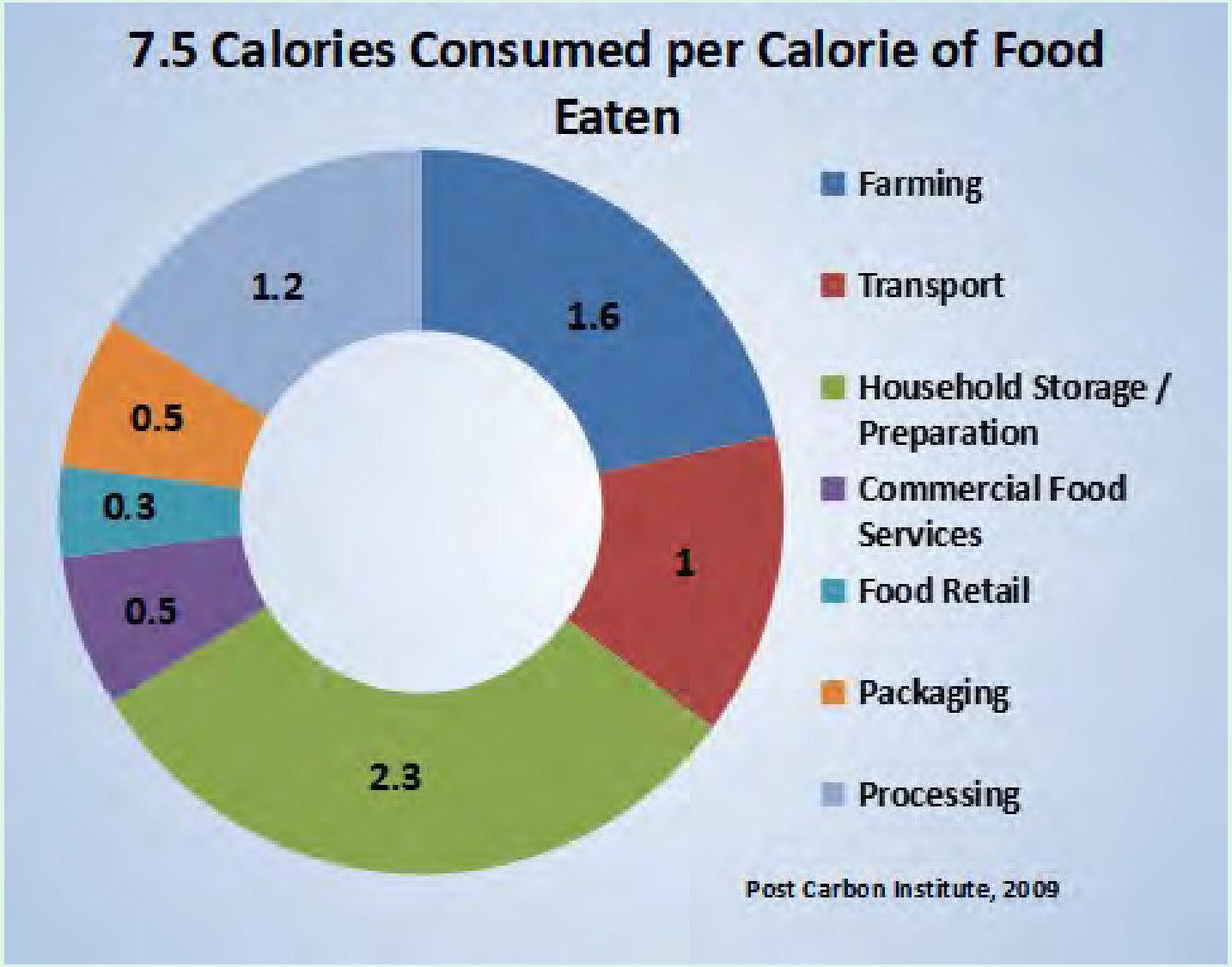
Medieval Era Grain Threshing
4 Farmers to 1 Non-farmer

Early Industrial Era Grain Threshing
1 Farmer to 10 Non-farmers

Modern Combine
1 Farmer to >>100 Non-farmers

A combine is called a "combine" because it combines multiple harvesting tasks into one machine. Specifically, it integrates the processes of reaping (cutting the crop), threshing (separating the grain from the stalks), and winnowing (removing the chaff from the grain).

Hydrocarbons, Food Production and Consumption



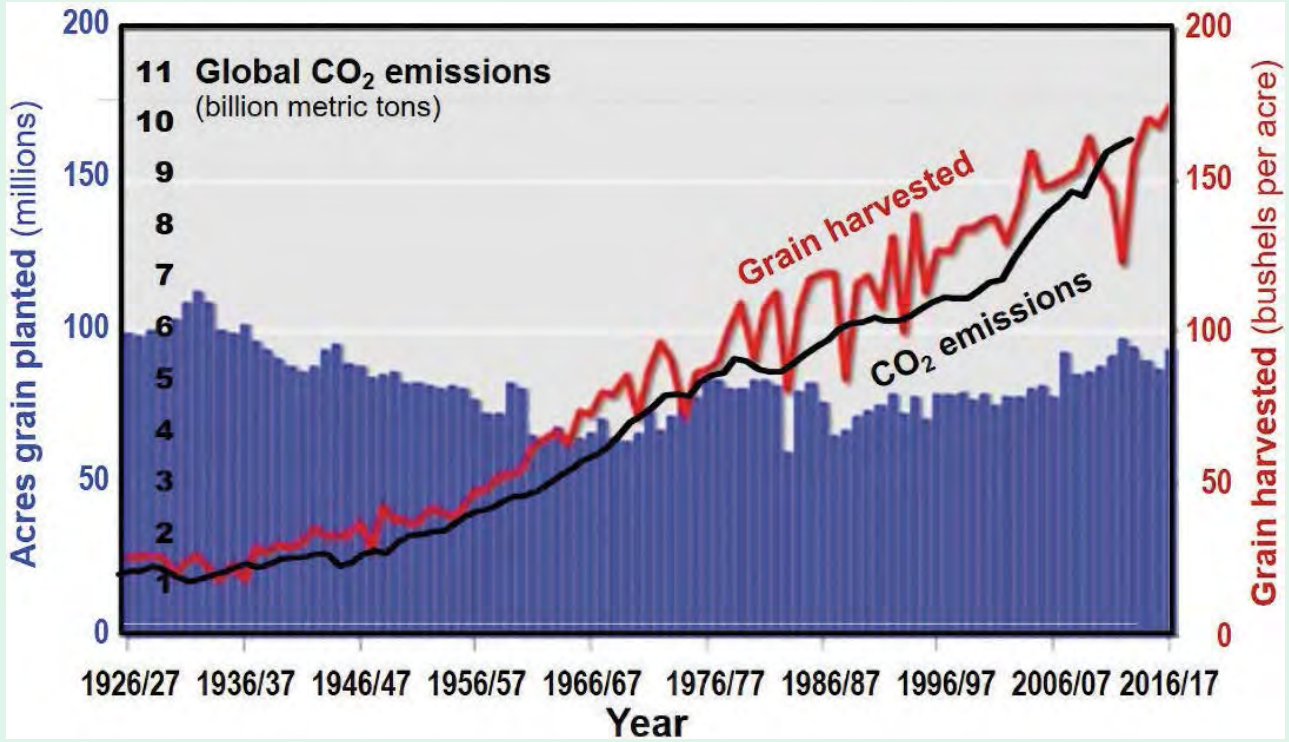
Relevant - Related Facts

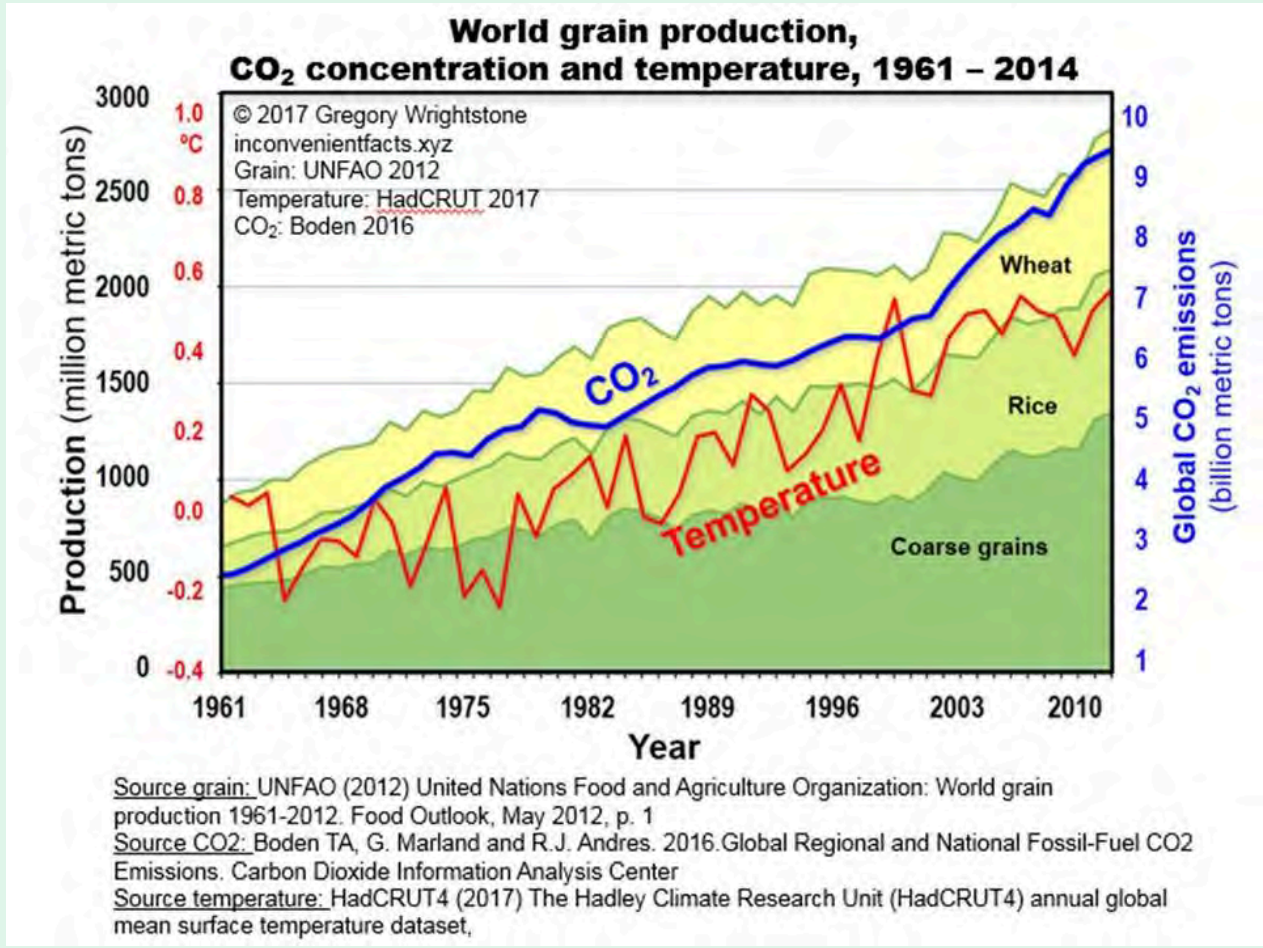
Best estimates of the physical activity level of an adult male working 6 days per week in a heavy labor job, has them consuming the energy equivalence of a *barrel of oil per year* in food.

Every barrel of oil consumed by agricultural practices, effectively frees up an adult laborer to work in more specialized capacities.

As appoximately 85% of all primary energy consumed is derived from hydrocarbons, it is clear that modern agricultural practices are almost entirely dependent on geology over sunshine (i.e., photosynthesis).

Evidence of the Global CO_2 Fertilization Effect and the 20th Century Green Revolution



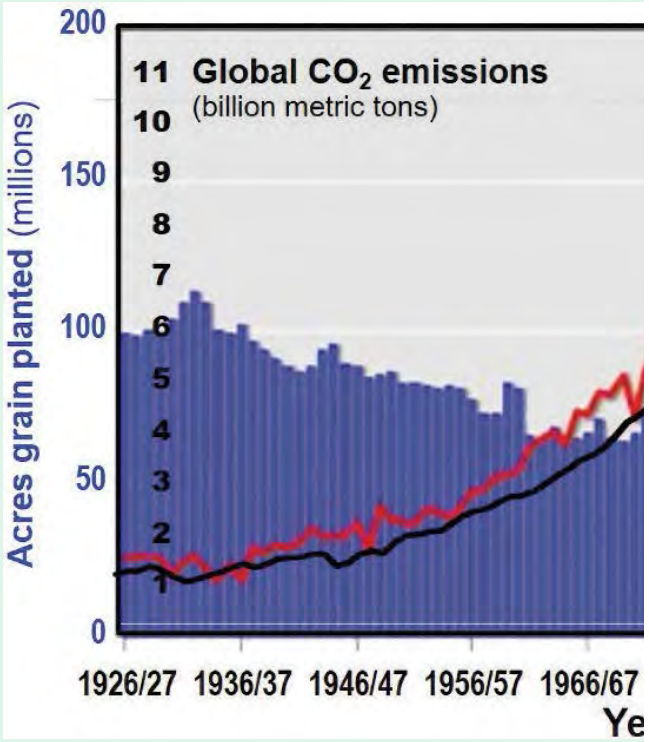


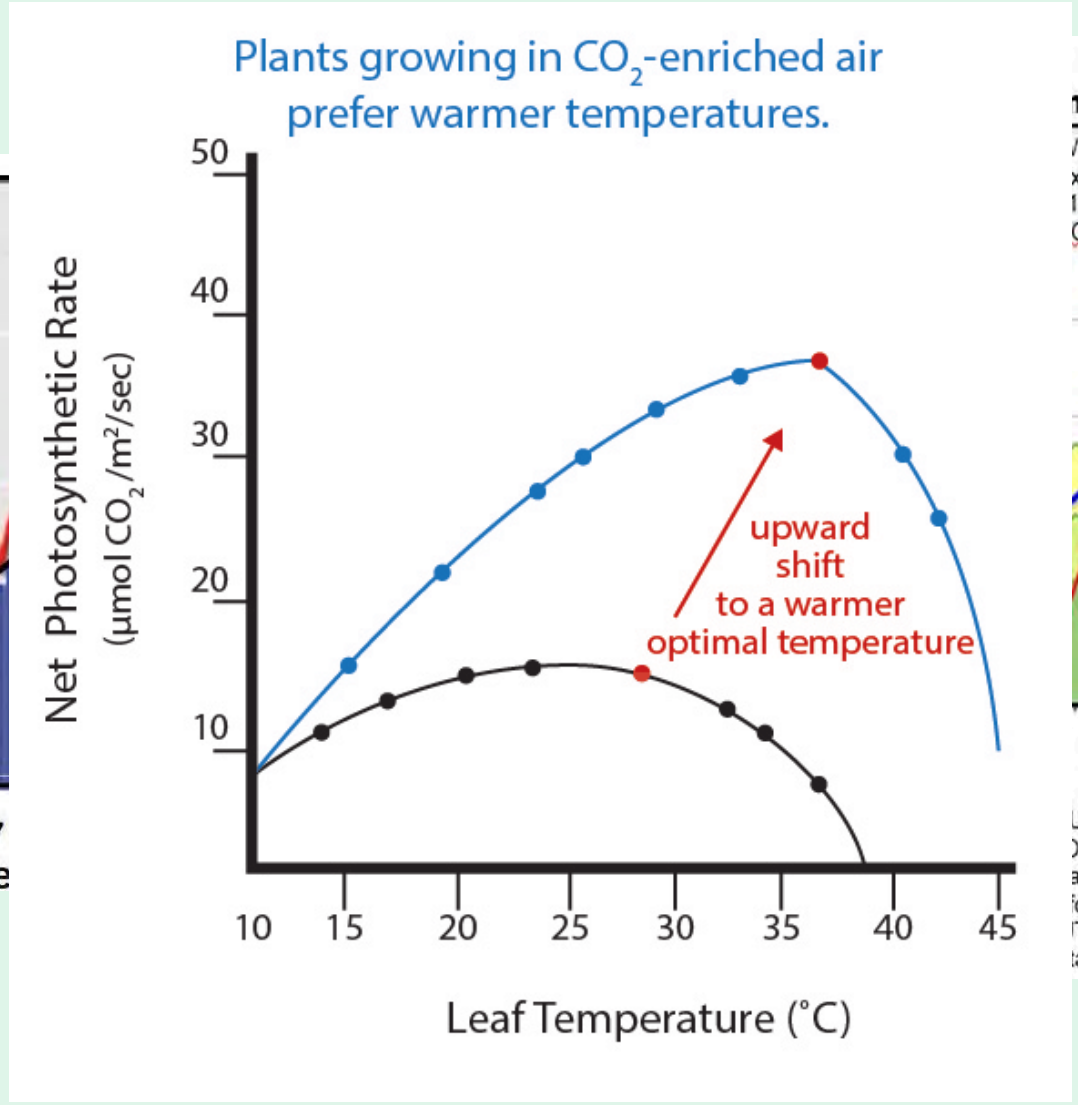
Source grain: UNFAO (2012) United Nations Food and Agriculture Organization: World grain production 1961-2012. Food Outlook, May 2012, p. 1

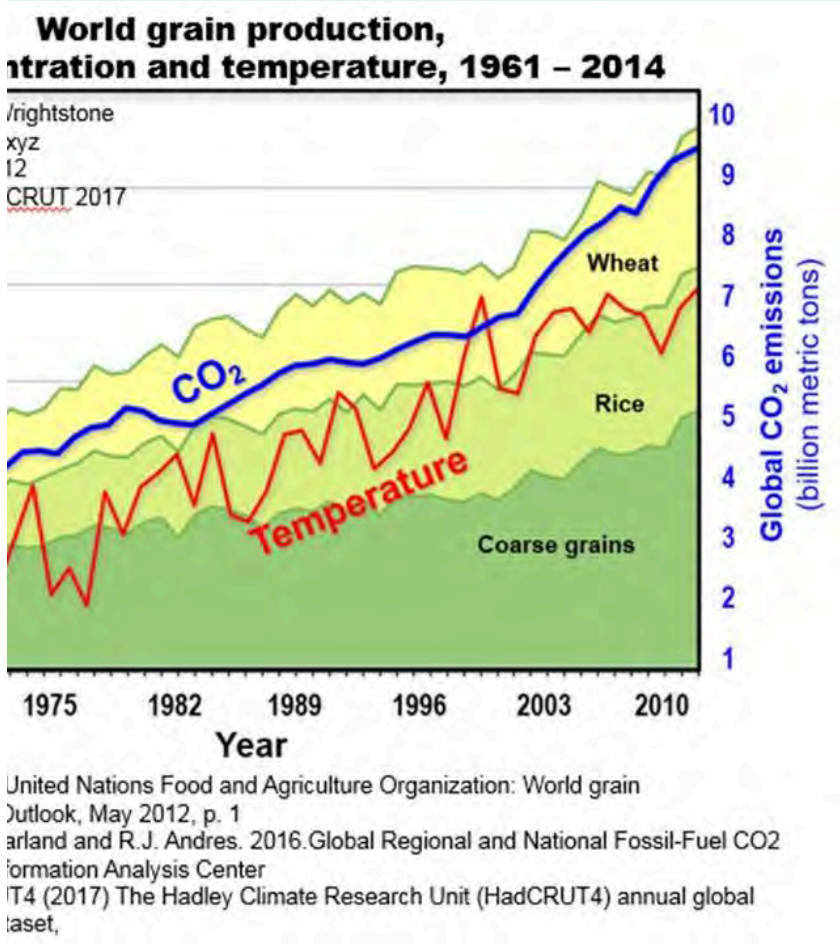
Source CO2: Boden TA, G. Marland and R.J. Andres. 2016.Global Regional and National Fossil-Fuel CO2 Emissions. Carbon Dioxide Information Analysis Center

Source temperature: HadCRUT4 (2017) The Hadley Climate Research Unit (HadCRUT4) annual global mean surface temperature dataset,

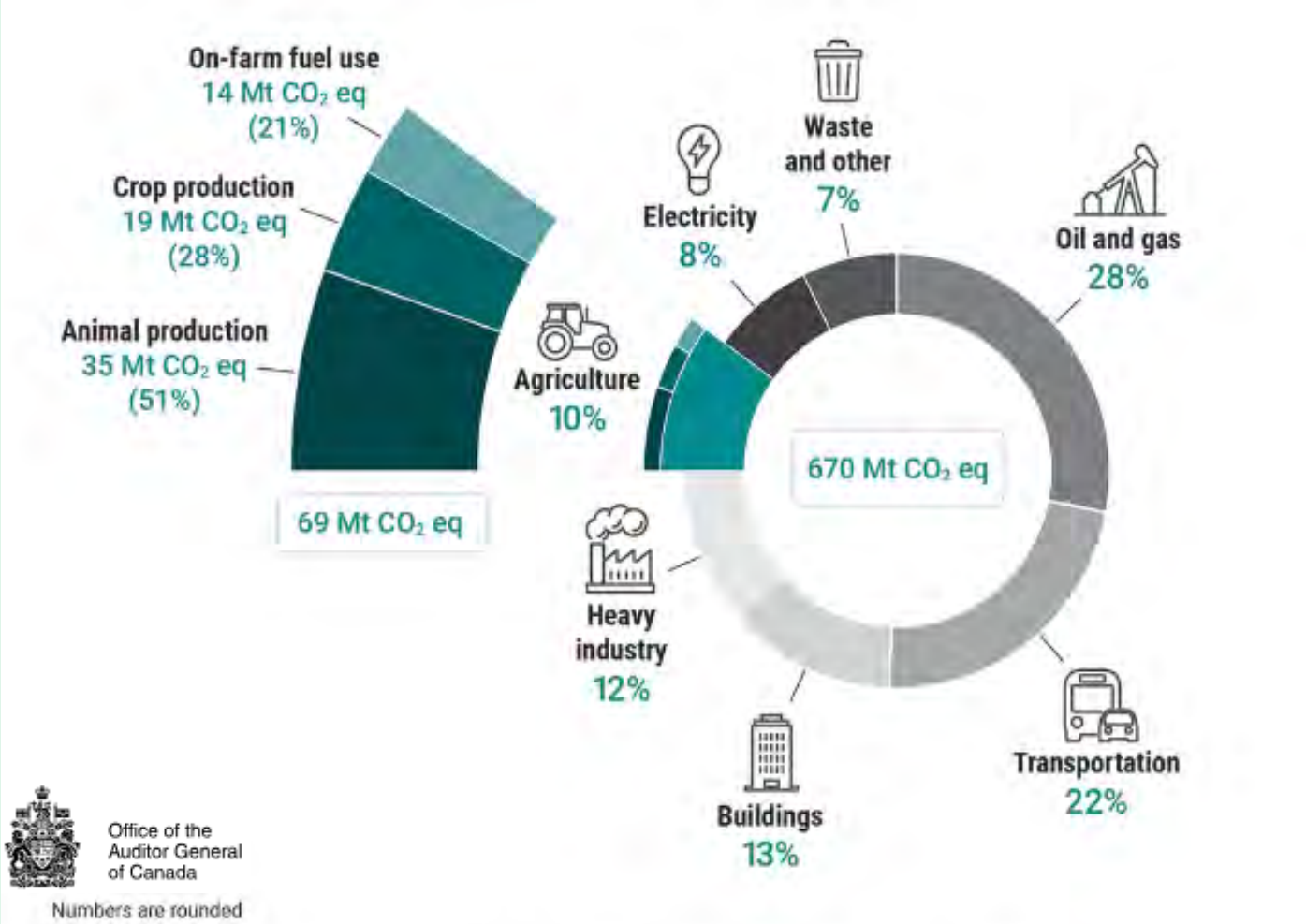
Evidence of the Global CO_2 Fertilization Effect and the 20th Century Green Revolution







Canadian CO_2e Emission Estimates by Sector (2023)

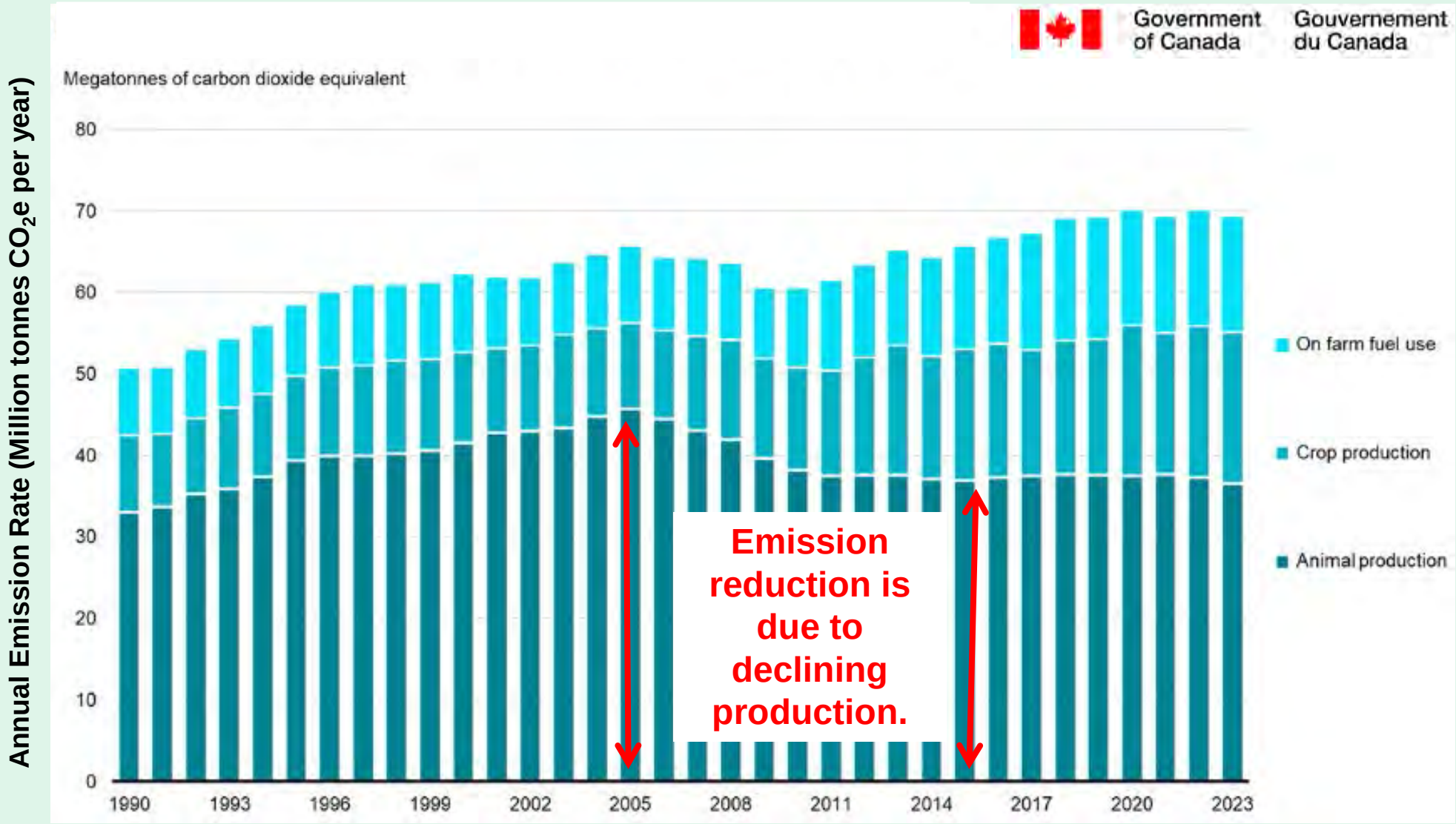


Source: Adapted from Canada's National Inventory Report 1990–2021: Greenhouse Gas Sources and Sinks in Canada, Environment and Climate Change Canada, 2023

Counter Narrative Spin

- Canadian grain farmers produce enough calories to support a population 6 to 7 times Canada's population - using Stats Canada 2024 grain production data, specific calorie densities, while assuming 2,300 calories / day / person.
- Canadian oil & gas produces sufficient hydrocarbon energy to support a population upwards of twice that of Canada's in 2024.
- CO_2e emissions reflects productivity.

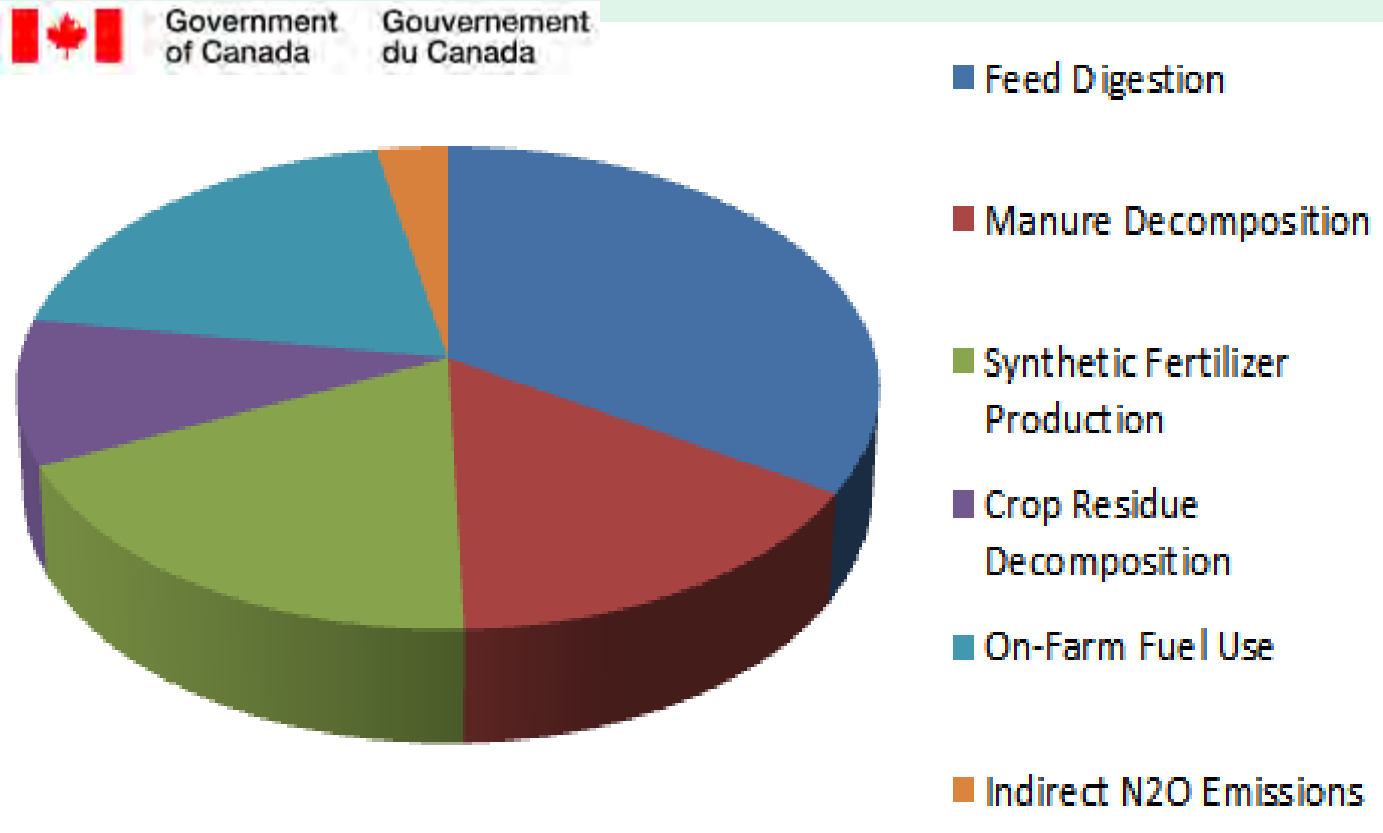
Canadian Agricultural Sector Greenhouse Gas Emissions



https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/greenhouse-gas-emissions.html#agriculture

2023 National Inventory Report (1990–2023) by Environment and Climate Change Canada (ECCC)

CO_2e Emission Estimate (2023) by %



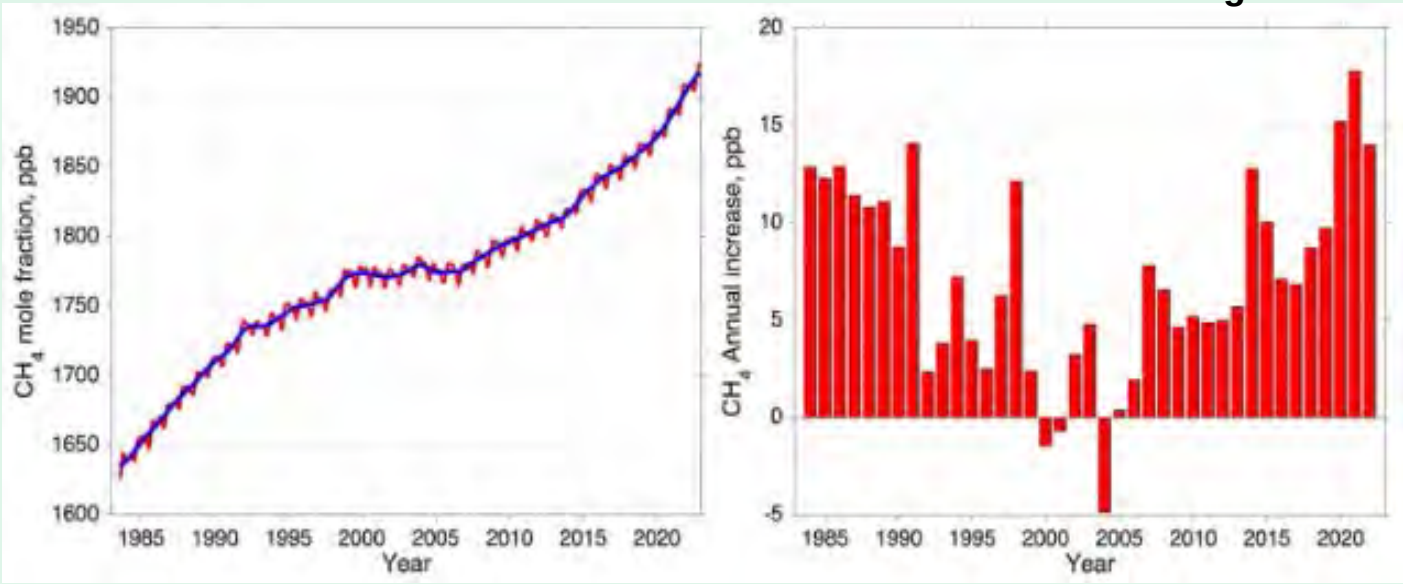
Approximately half or 35 million tonnes CO_2e per year from digestion and manure decomposition alone.

- 2024 estimate Prairie region cows: 7 million head.
- Pre-colonial Bison herd: 3.5 to 7 million head (350k km^2 - 10 to 20 Bision per km^2).

Is the bias towards agricultural methane (CH_4) or CO_2 emissions warranted?

Canadian Boreal Forest Wetlands Ecosystem

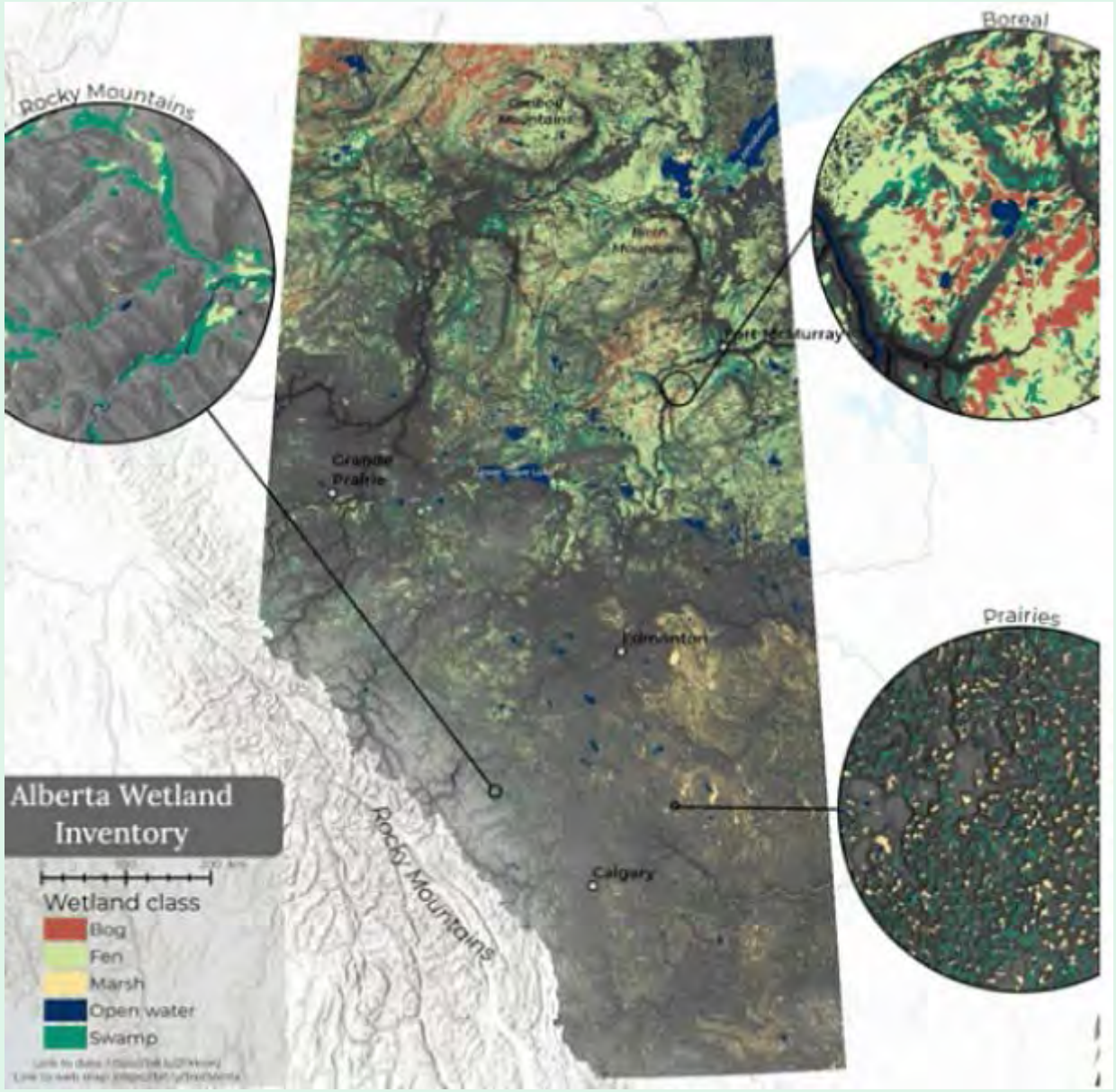
Global Methane Concentration and Annual Rate of Change



Clearly natural processes are dominating.

Estimating Biogenic Emissions - Part I

Alberta Biodiversity Monitoring Institute (ABMI)



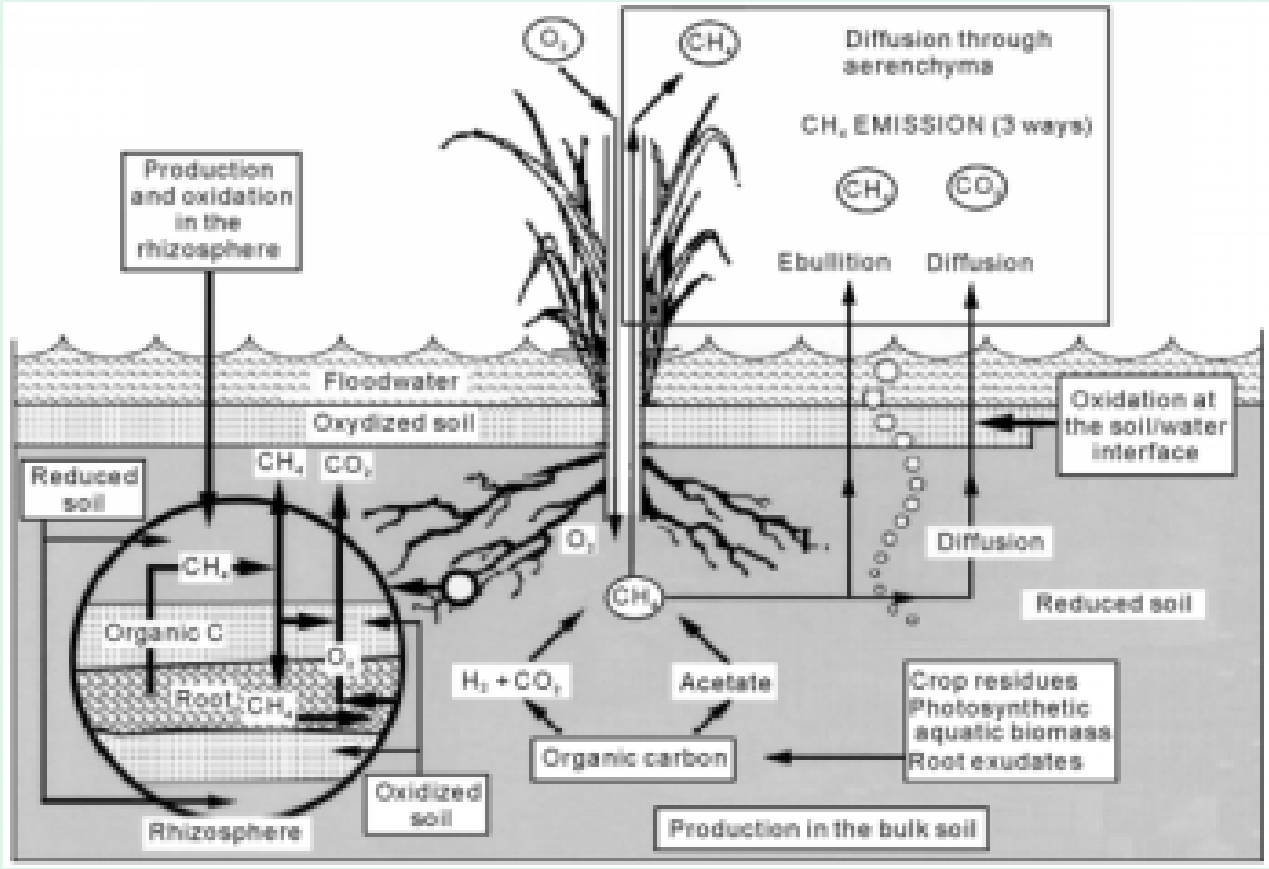
Researchers use flux chamber techniques to estimate fugitive methane (CH_4) or CO_2 emissions from differing types of wetland ecosystems.

Flux rates are calculated using captured gas composition and carrier gas flow rates.

Flux Chamber Apparatus

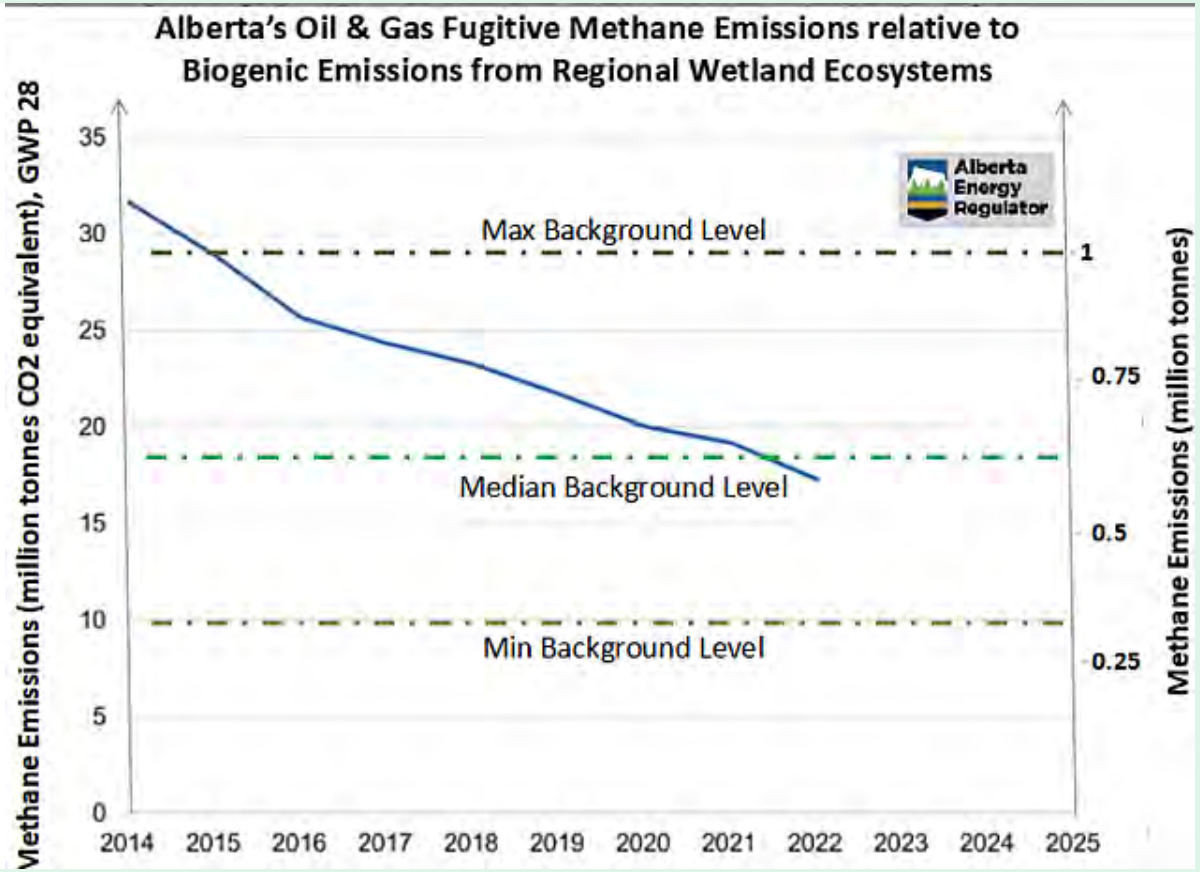
Estimating Biogenic Emissions - Part II

Fugitive Methane Emission Pathways



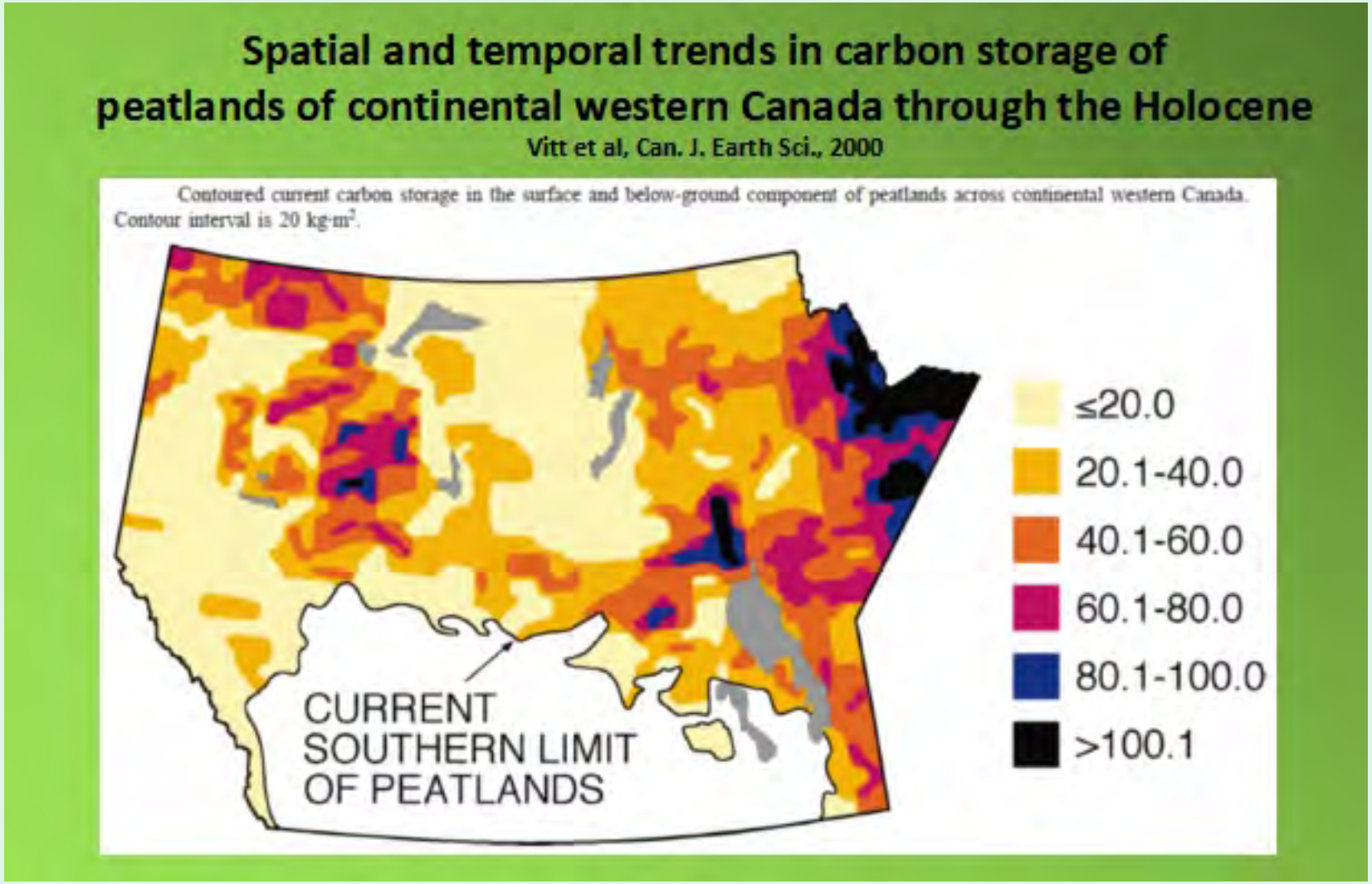
Flux chambers produce the lowest end estimates of actual fugitive emissions.

Estimated Alberta Oil & Gas vs Provincial Wetland Methane Emissions



Minimum natural methane emissions from Alberta wetlands are on par with best estimates for methane emissions from Alberta oil & gas infrastructure.

Estimating Background Biogenic Emissions - Part III



Peat (carbon) accumulation increases in proportion to CH_4 emissions and decreases with reduced precipitation or higher temperatures.

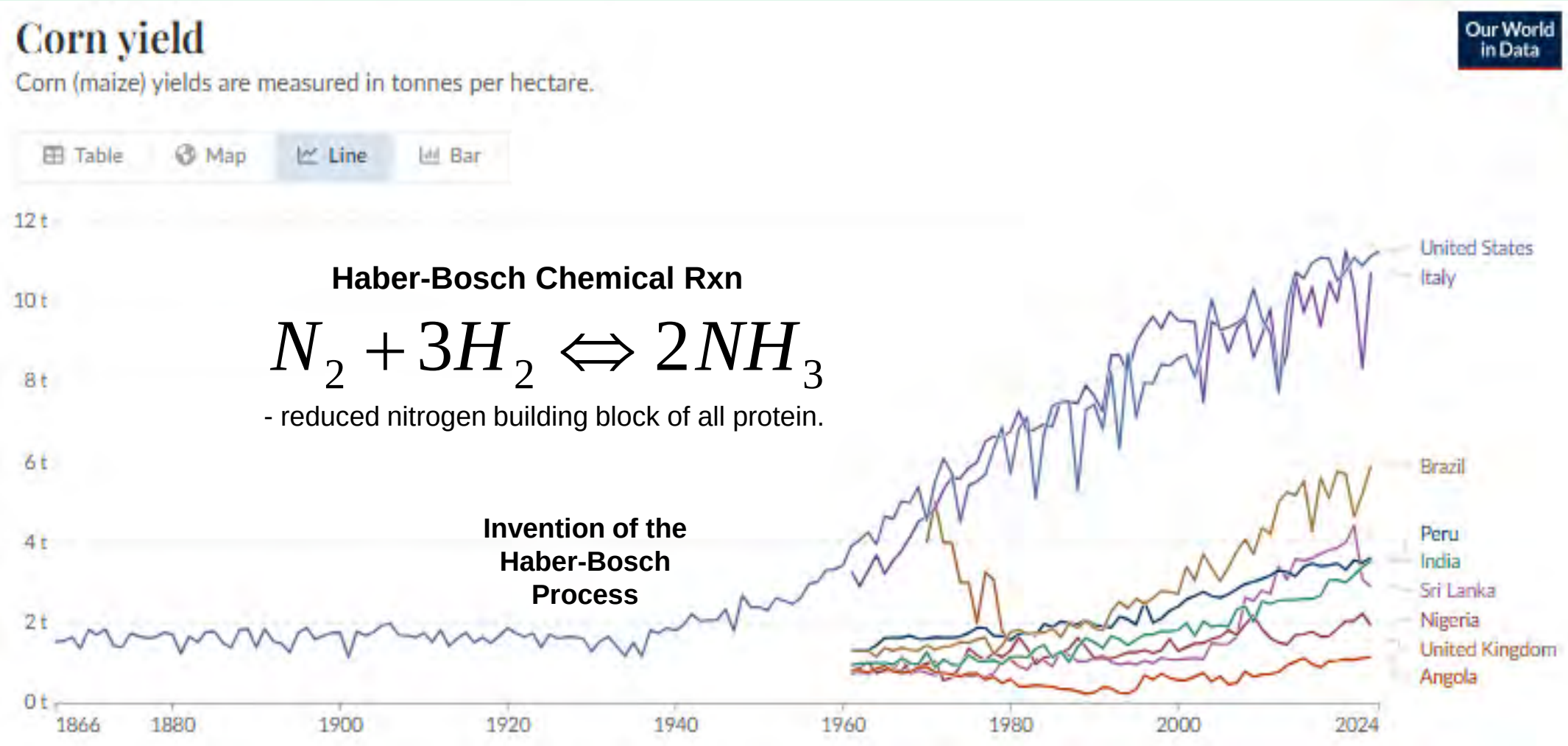
Elevated CO_2 emissions suggest carbon content in soil is decreasing.

Expansion of the Boreal Forest is a precursor to the onset of the next glacial maximum - also called the Holocene Neoglacial sub-epoch.

Actual CH_4 emissions from Boreal ecosystems is at least 10x higher than from either Canadian oil & gas or agricultural sectors. Similarly we can expect biogenic N_2O emissions to be proportionately higher.

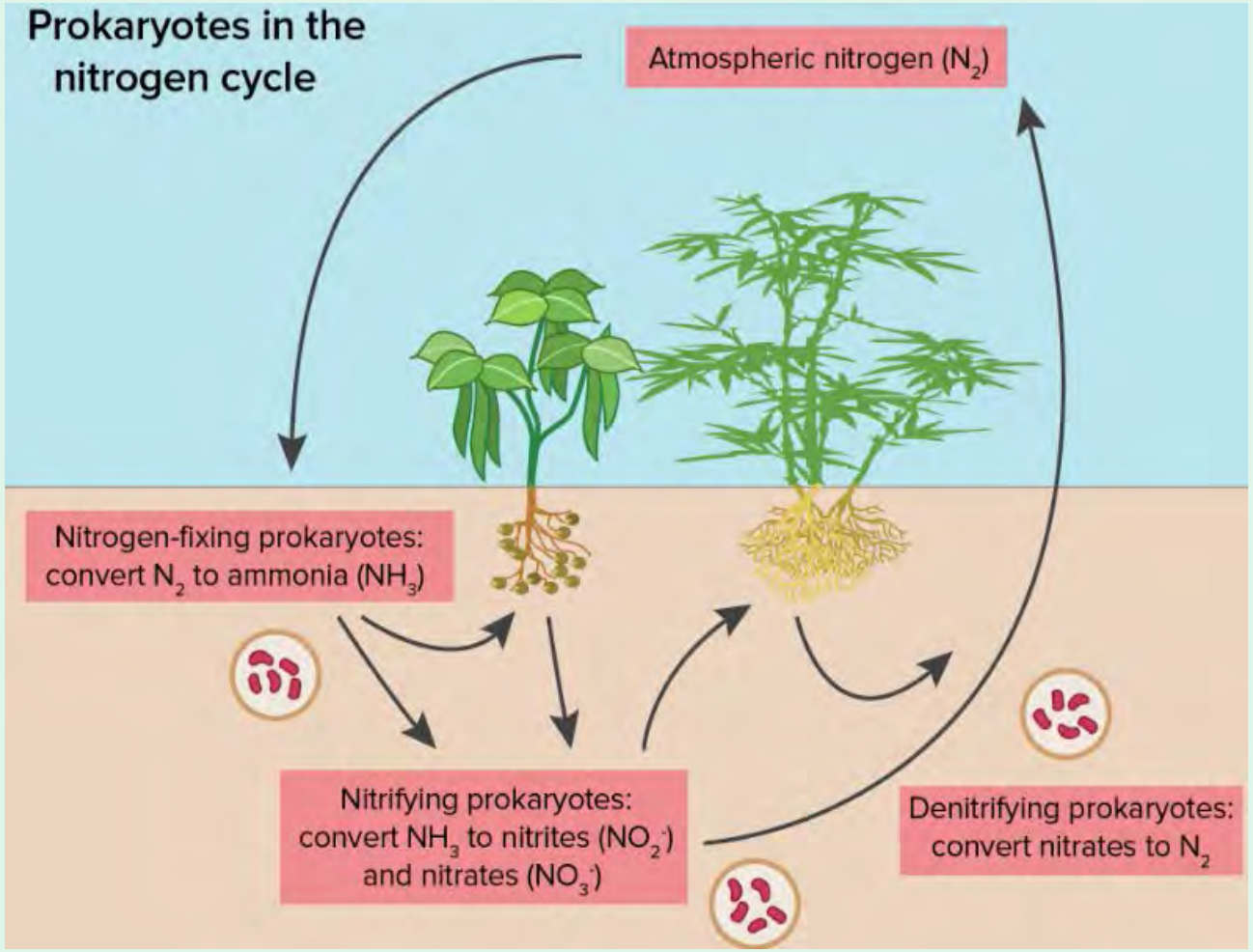
Introduction of Haber-Bosch Process - Synthetic Nitrogen Fertilizers

The Foundational Technology of the Green Revolution



50% of humanity would starve in 1 to 3 years if we shut down Haber-Bosch plants.

Pros & Cons of Human Alteration of the Nitrogen Cycle



Pros

1. Massively boost photosynthetic productivities.

2. Stabilized deforestation rates, especially along middle latitudes.

3. Virtually eliminated the need for summer fallow.

4. Significantly enhanced the landscape cooling effects of farmlands.

5. Increased drought resistance.

6. Acting to expand the Biosphere.

Cons

1. Can result in localized water pollution.

Fallowing in the Pre-No-Till and Pre-Synthetic Fertilizer Era

Letting croplands rest (aka *going fallow*) is an age old practice used to help restore soil nitrogen and moisture.

Every crop harvested results in nutrient depletion.

Atmospheric deposition of nitrates occurrs naturally.

Anywhere from 20% to 50% of farmland was in a fallow state prior to the the era of synthetic fertilizer and no-till practices.

Downsides include loss of carbonaceous content and spontaneous growth of weeds.

Fallow fields were tilled one or more times in a given season to limit growth of weeds.

Lessons-Learned from the Dirty 30s

1. Avoid the use of plows on established farmland to preserve the root structure and carbon content of the soil matrix.

2. Crop residue acts as an insulating armor that shields soil moisture.

3. The *Great Plains Dust Bowl* was part of a decade long pattern of reduced precipitation (e.g., Ukraine's Holodomor) as global circulation and sub-tropical Monsoon cycles were disrupted.

4. Natural climate change is a very real phenomenon.

No-Till Farming & Synthetic Fertilizer Practices

Engineering Drought Resistance in Droughty Farmlands (i.e., Canadian Prairies)

Minimize Soil Disturbance

Enhance Soil Health

Conserve Water

Reduce Erosion

Promote Biodiversity

Sustain Long-Term Productivity

Minimize Environmental Impact

Work with Natural Systems

Canadian Prairie grain & canola yields have increased by 50 to 100% since the 1960s.

No-Till practices since the 1980s have added 10 to 30% to this total yield growth.

Optimal use of synthetic fertilizers eliminated the need for summer fallow and added 30% to 50% of the total yield growth.

Other contributing factors include improved genetics, precision farming and climate factors.

Conclusions

1. By villainizing CO_2 and CH_4 emissions from food production, Net Zero policies are by design inflationary and anti-science.

2. Food production in the 21st century is intimately dependent on hydrocarbons - limit investment in hydrocarbon production and food inflation will be the result.

Empty Store Shelves

Public policies matters for farmers and for families.....

Truth

Thank you

Are there any questions?

Help Support us with a Donation

Thank You!