

# Overcoming barriers to biofuels: Energy from diverse prairie biomass

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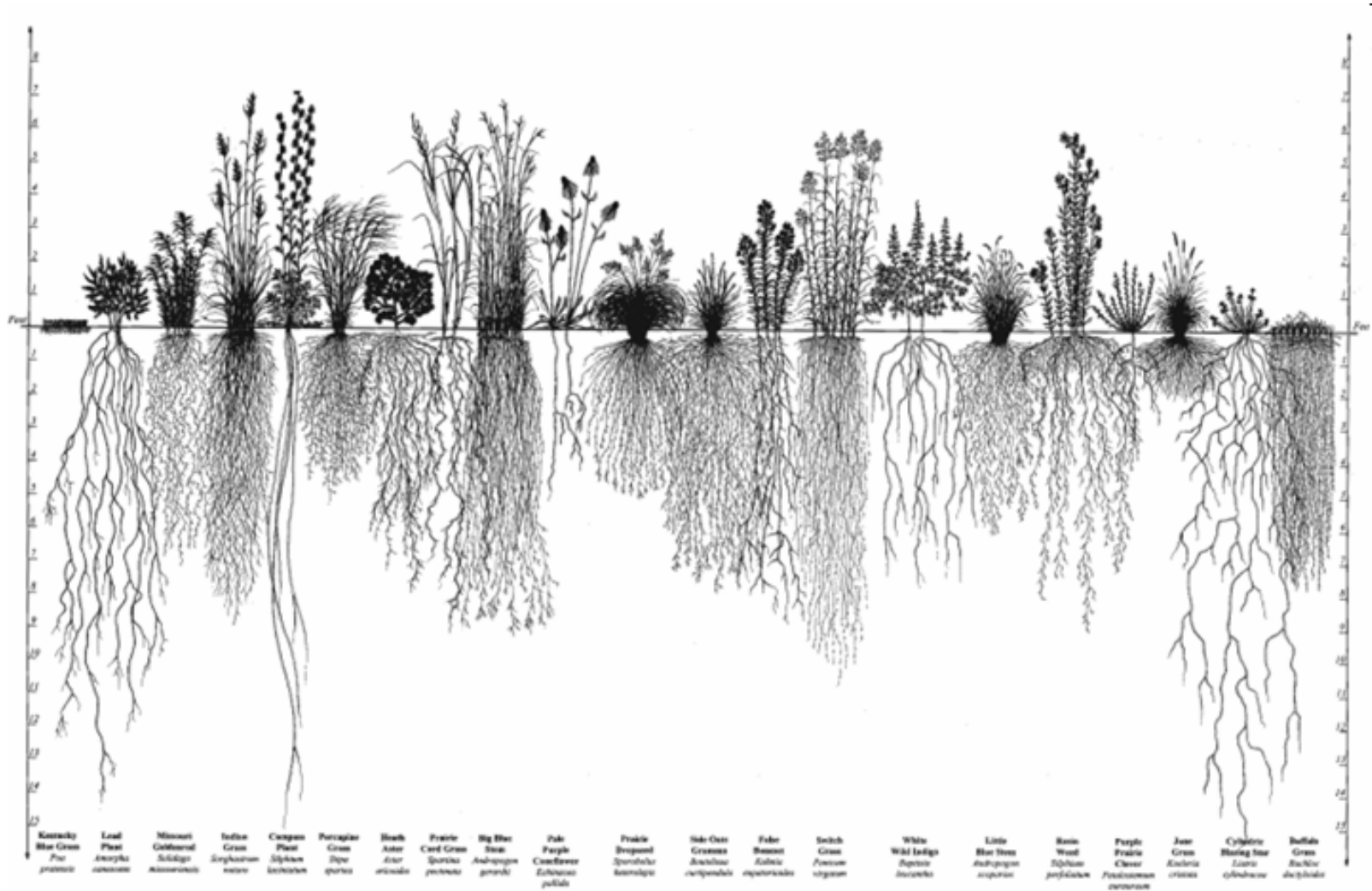
# Expectations of corn ethanol...

	US production in 2006	Devoting entire 2006 US corn production to ethanol
Corn grain ethanol	17% of corn harvest 2.1% of gasoline use (gross) 0.4% of gasoline use (net)	100% of corn harvest 12.1% of gasoline use (gross) 2.4% of gasoline use (net)

# Power from prairies...



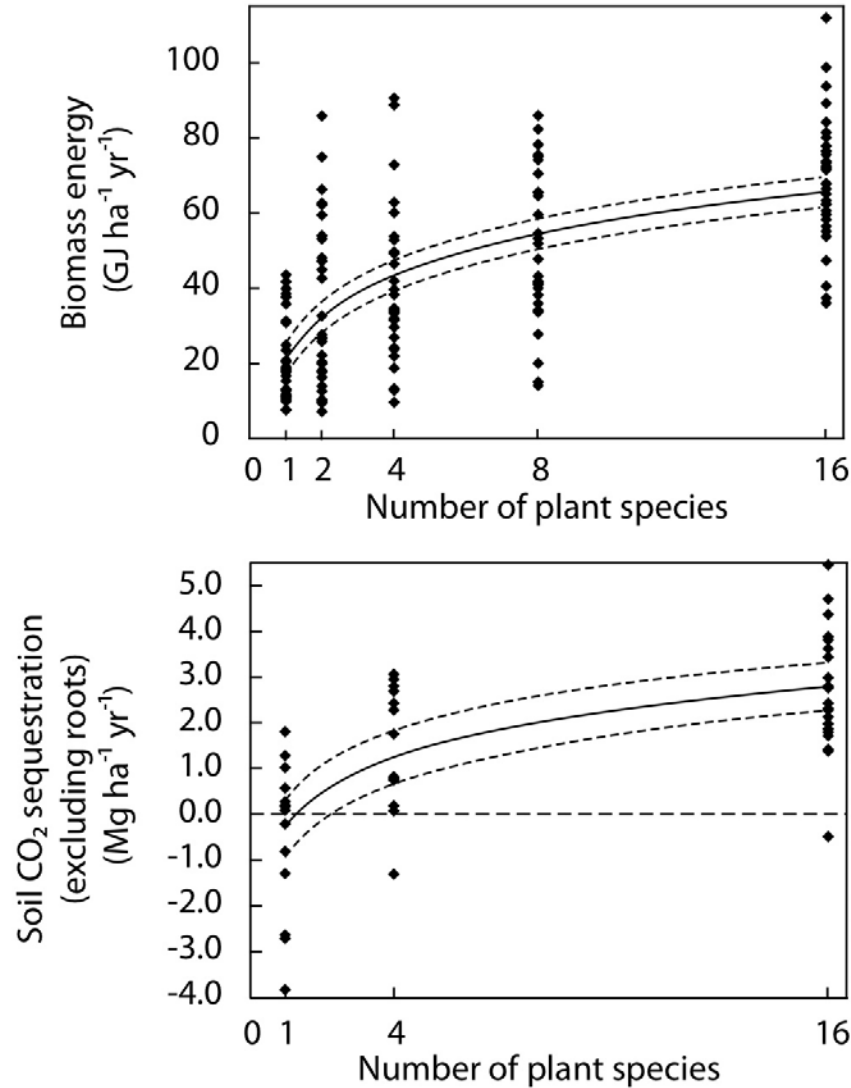
# 2/3 of the prairie is below ground...



# Cedar Creek biodiversity experiment...



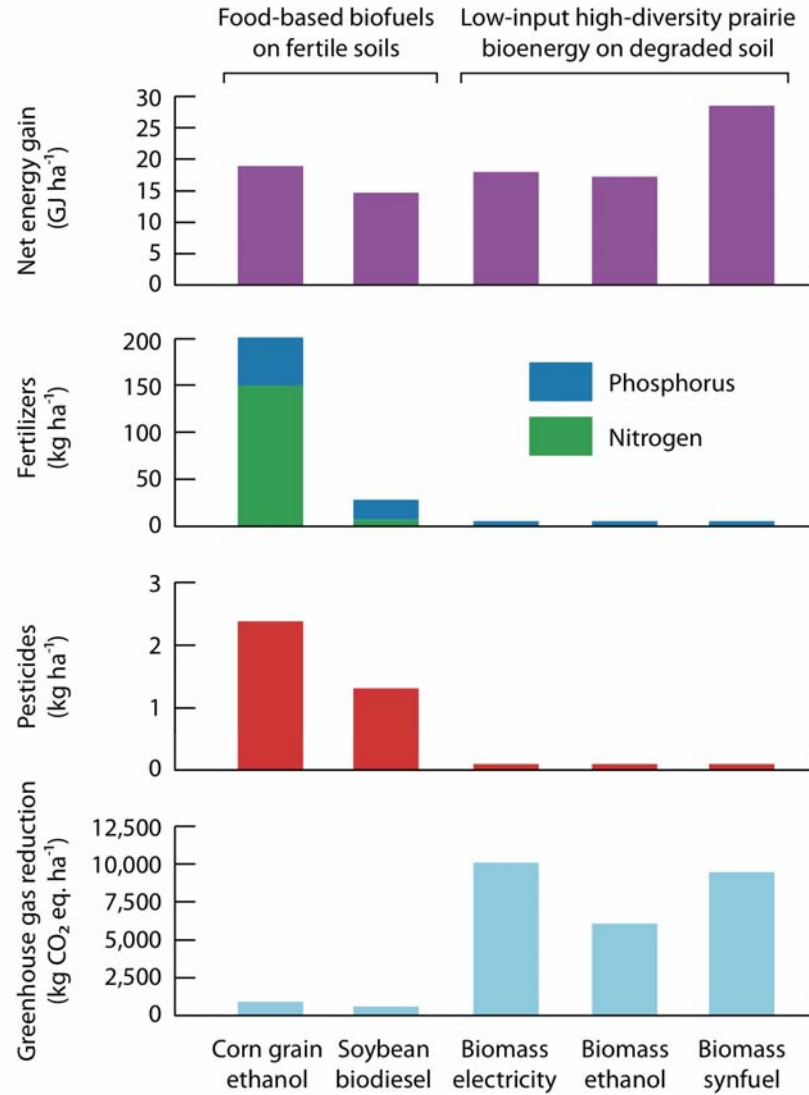
# Benefits of biodiversity...



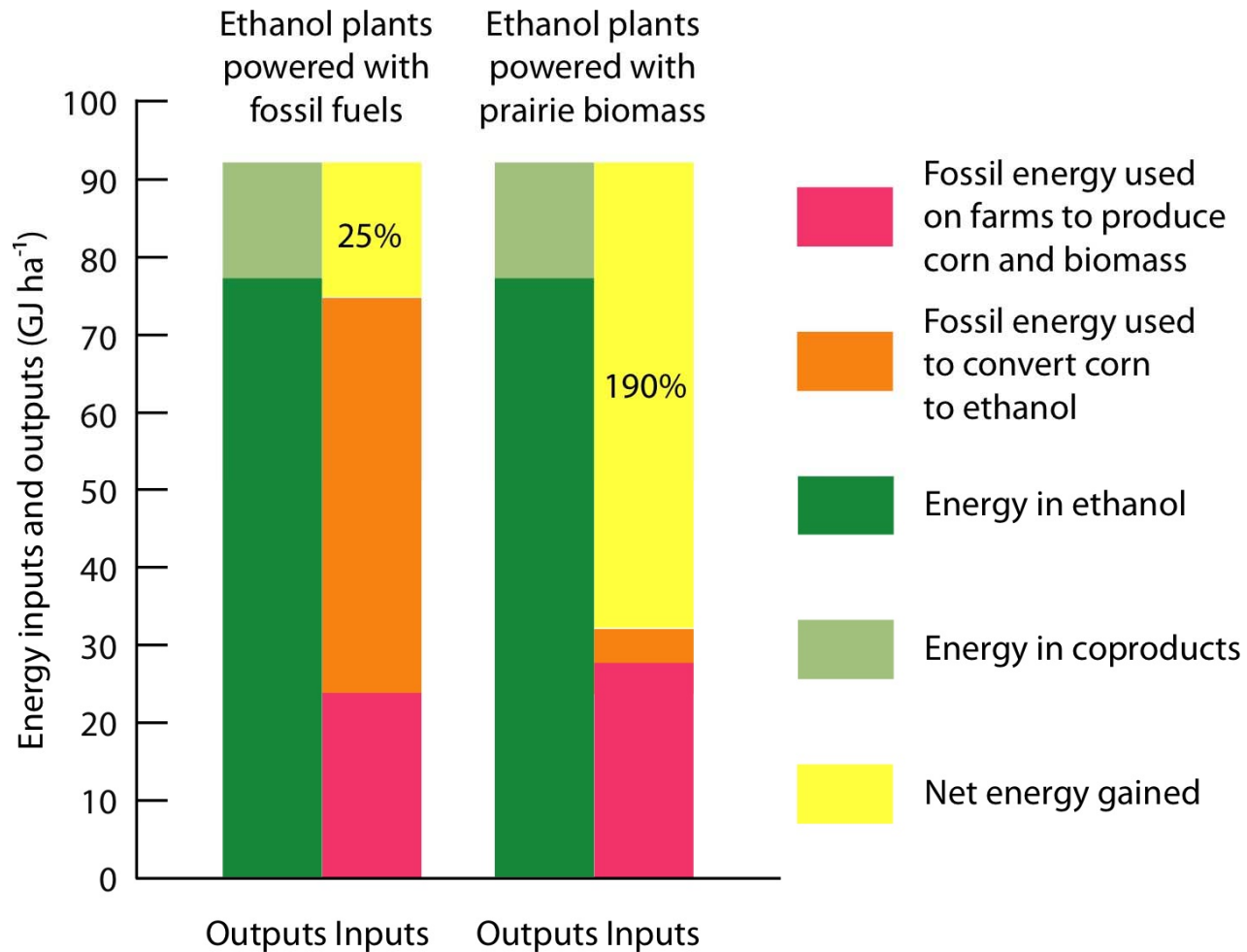
# Nutrient input requirements...

(kilograms of fertilizer per hectare per year)	Monoculture corn production on fertile farmland	Highly diverse prairie on degraded farmland
Nitrogen	148	0
Phosphorus	23	4
Potassium	50	6

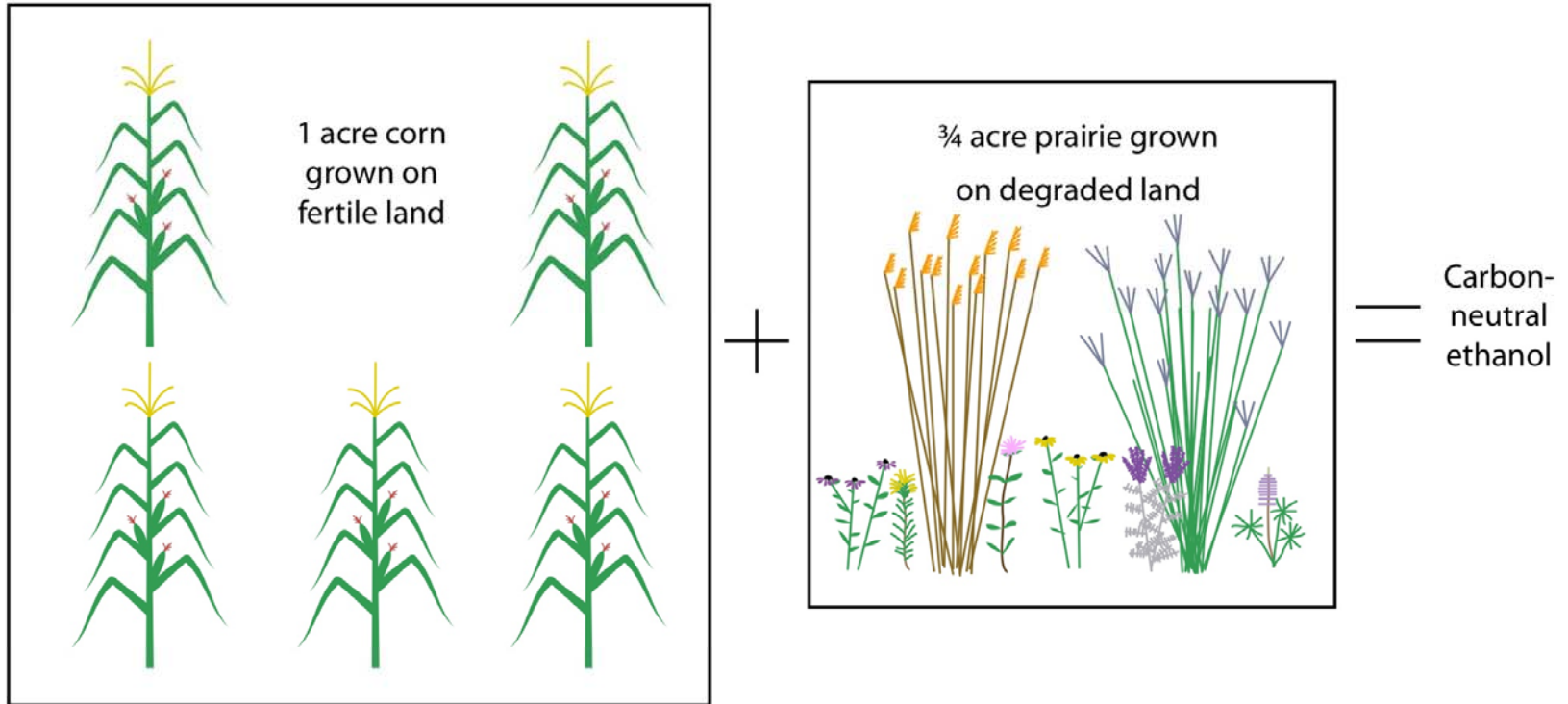
# Comparing current and prairie biofuels...



# Prairie-powered corn ethanol (energy)...



# Prairie powered corn ethanol (carbon)...



Greenhouse gases **emitted** to the atmosphere or **sequestered** (lbs. CO<sub>2</sub>)

2,700 (Farming and transport)

2,600 (Processing using biomass)

200 (Farming and transport)

-2,600 (Biomass growth)

-2,900 (Soil carbon storage)

Net: 0