

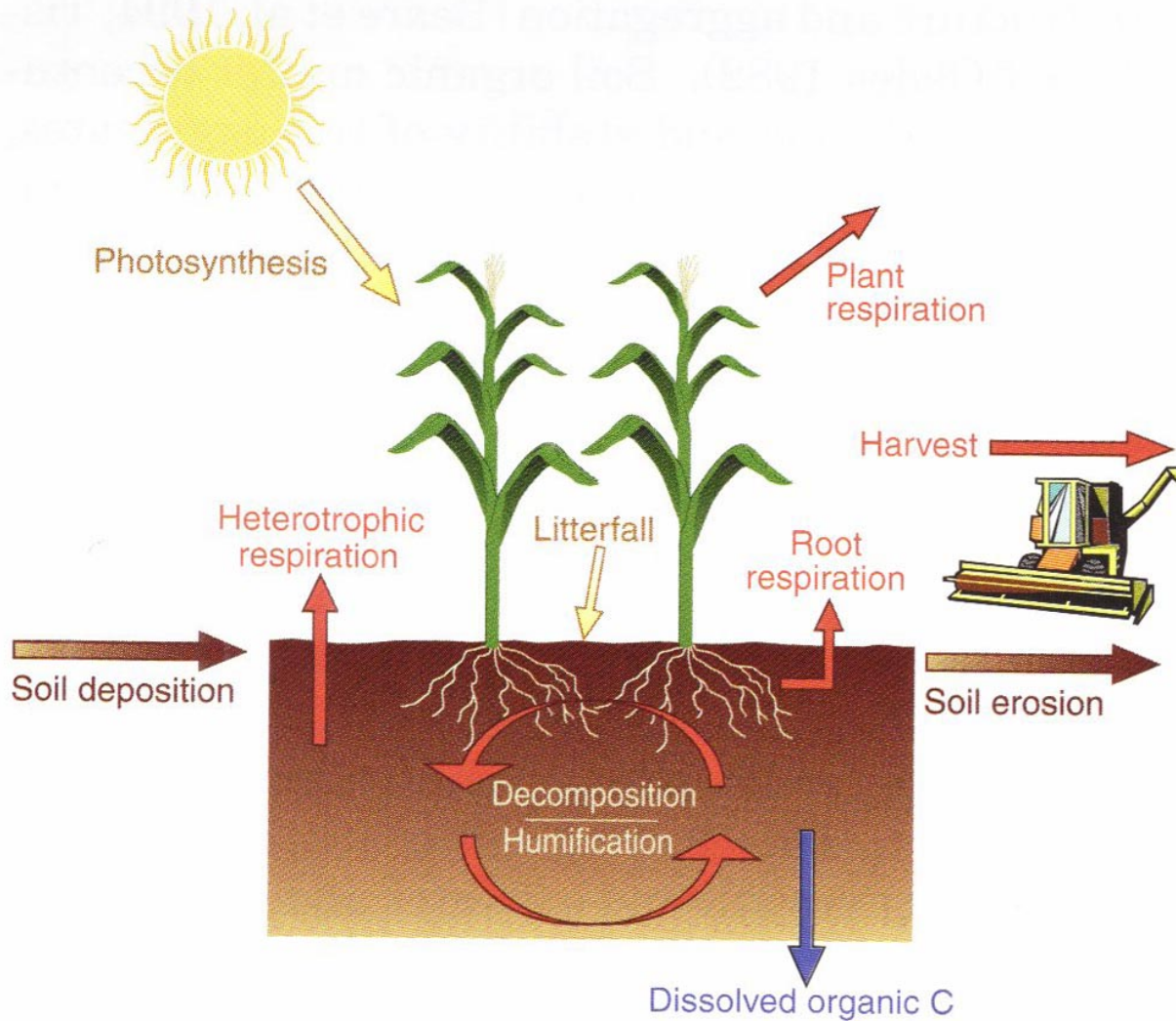
# **A Soil's View**

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- The Plan:
  - Remove corn and native prairie grass stover and convert the C to ethanol
- Items to consider:
  - Effects of biomass removal on soil organic matter and ultimately soil quality/sustainability
  - What are we going to do with remaining material (probably high in N and lignin)
- Soil sustainability evolves around the C cycle



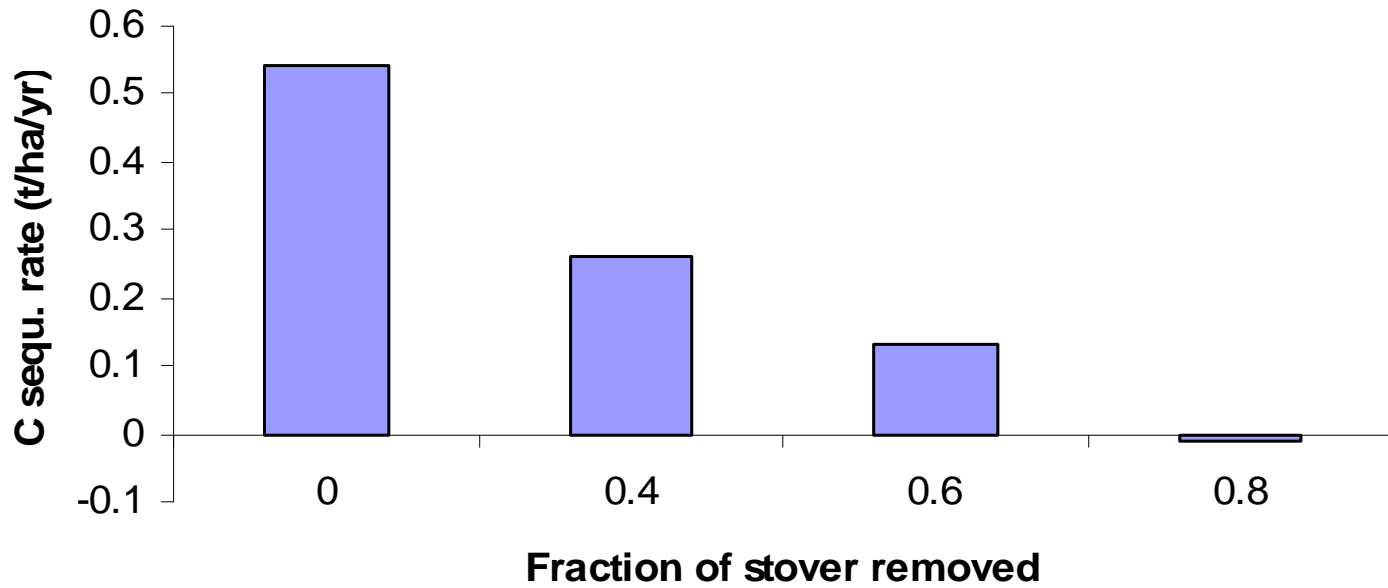
**Figure 2.1.** Overview of the C cycle in cropland ecosystems, showing the major fluxes of organic C. Drawing courtesy of A. Swan, Colorado State University.

# C sequestration and Harvesting Biomass

- North Dakota Farmer's Union is now approved to aggregate C in no-till and lands seeded to grass
- Can we have it both ways?



### 45 yr Continuous Corn (Modelled Data)



Retta and Rice, Kansas State University

# Other Issues of Interest

- Soil fertility
  - 1859---soil fertility research started
  - Requirements for native grasses (N,P,K, micros)?
    - Best guess---107 lbs N/acre\*year (\$37/acre\*year using ammonium sulfate)
      - More or less for optimum return???
  - Is there a place for legume cover crops?
- Land application of by-products to increase soil C levels, decrease bulk density, increase water holding capacity, and ultimately decrease erosion potentials
  - Distillers grains, glycerol, oilseed crushing