USDA's Inventory & Improvements

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USDA GHG Inventory

▸ Covers forestry and agriculture only

▸ Published every 4 to 5 years

▸ Same data as EPA's inventory but further disaggregated

▸ Includes on-farm energy use

▸ Report that covers 1990 - 2013 released soon

Figure 5-2
Energy use in agriculture, by source, 1965-2008

Gasoline ▫ Diesel ▪ LP gas ▪ Natural gas ▪ Electricity
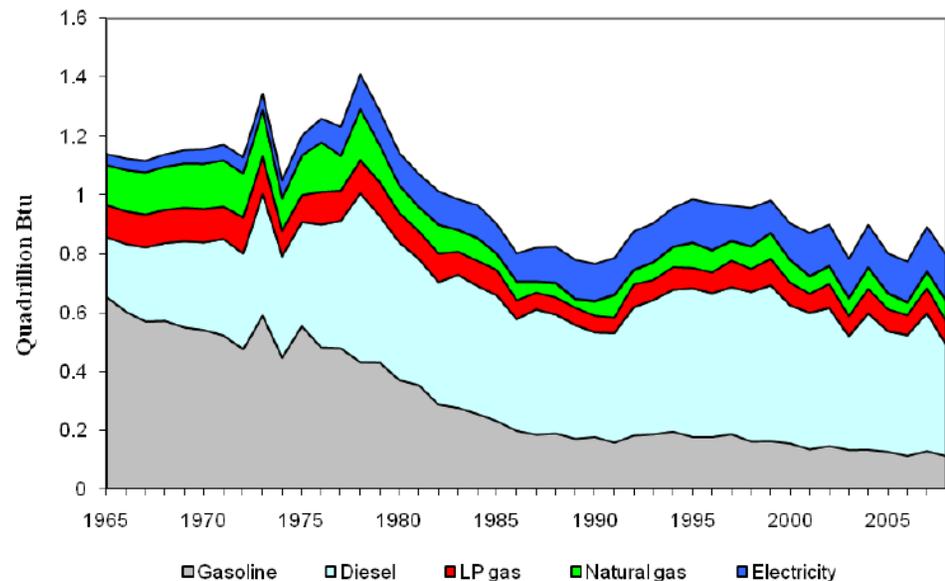
Btu is British Thermal Units, or the amount of energy needed to heat 0.454 kg (1 lb) of water from 3.9 °C (39 °F) to 4.4 °C (40 °F).

Cropland data improvements underway

- Goal: improve national activity data for cropland
  - Activity data: "data on the magnitude of human activity resulting in emissions or removals taking place during a given period of time"
- Newly available data source: Conservation Effects Assessment Project (CEAP) survey
- Working with USDA NRCS and partners to analyze CEAP data to use in National Inventory
- CEAP data will be incorporated into DayCent model for cropland to estimate GHG fluxes for soil C and N_2O from fertilizers
  - Improved data on fertilizer & manure application, tillage, cover crops

Building blocks

- **USDA's Building Blocks for Climate Smart Agriculture & Forestry**

- Remove 120 million metric tons of CO_2 equivalent ($MMTCO_2e$) per year by 2025

- Voluntary and incentive-based

- Focused on multiple benefits

- Meet the needs of producers

- Assess progress and measure success

- Cooperative and focused on building partnerships
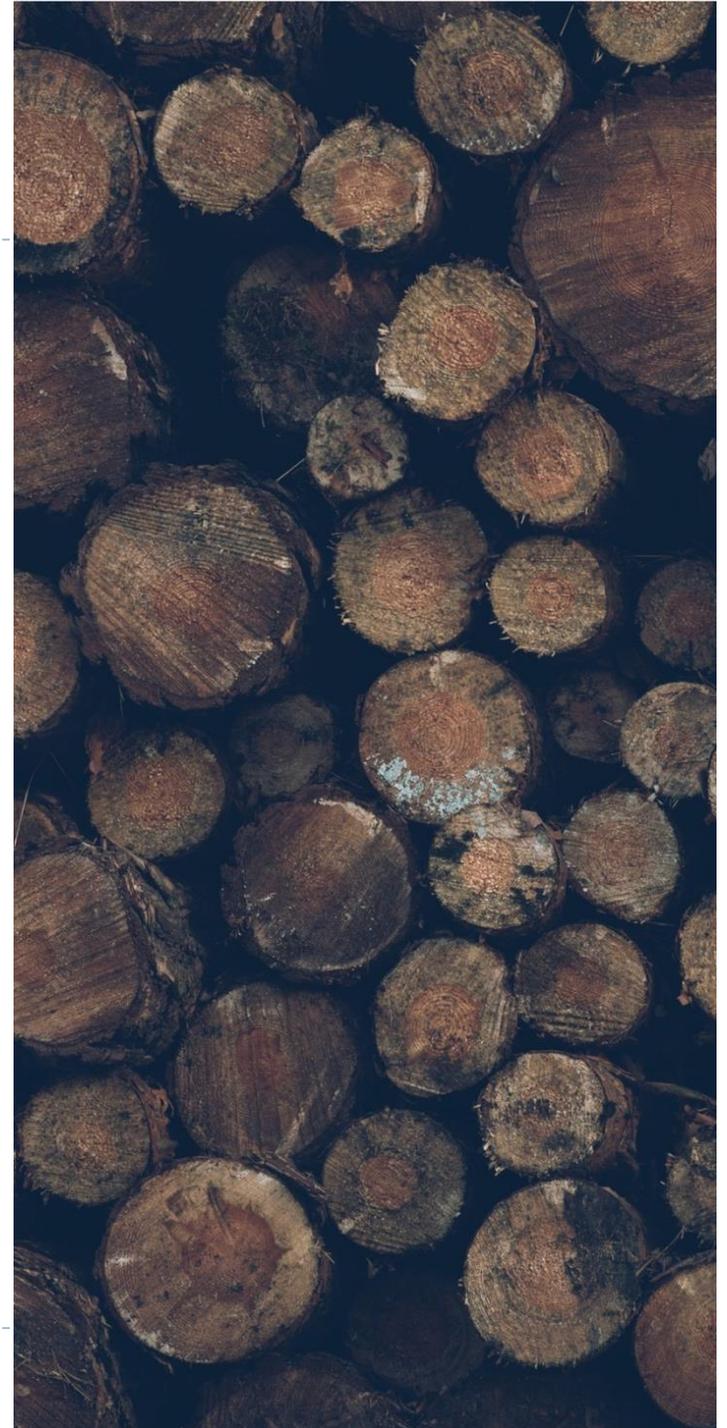
How to assess progress?

- USDA program data
  - Data collected by USDA agencies.
    - e.g., acres covered by CRP, projects funded by EQIP, # of digesters installed.
  - Usually reported annually
  - Can track progress
  - Measures do not have a unified metric. Used for progress but not comparison.
  - May not separate new vs. continued activities
  - Doesn't capture temporal or spatial spillover, or anything beyond USDA program boundaries

▶ **National GHG Inventory**

    ▶ National level data for agriculture and forestry.

        ▶ e.g., national survey data, forest inventory.

    ▶ Activity data converted into GHG flux calculations.

    ▶ Representative of national activities & captures net impact of USDA and non-USDA activities

    ▶ Can be converted to a unified metric (carbon dioxide eq.)

Next steps

▸ Prioritize data needs for Building Blocks

  ▸ Improve agricultural activity data

  ▸ Manure mgmt, tillage, cover crops

  ▸ Utilize existing surveys: CEAP, ARMS, etc.

▸ Feed activity data into inventory

  ▸ National Inventory should reflect efforts of the Building Blocks
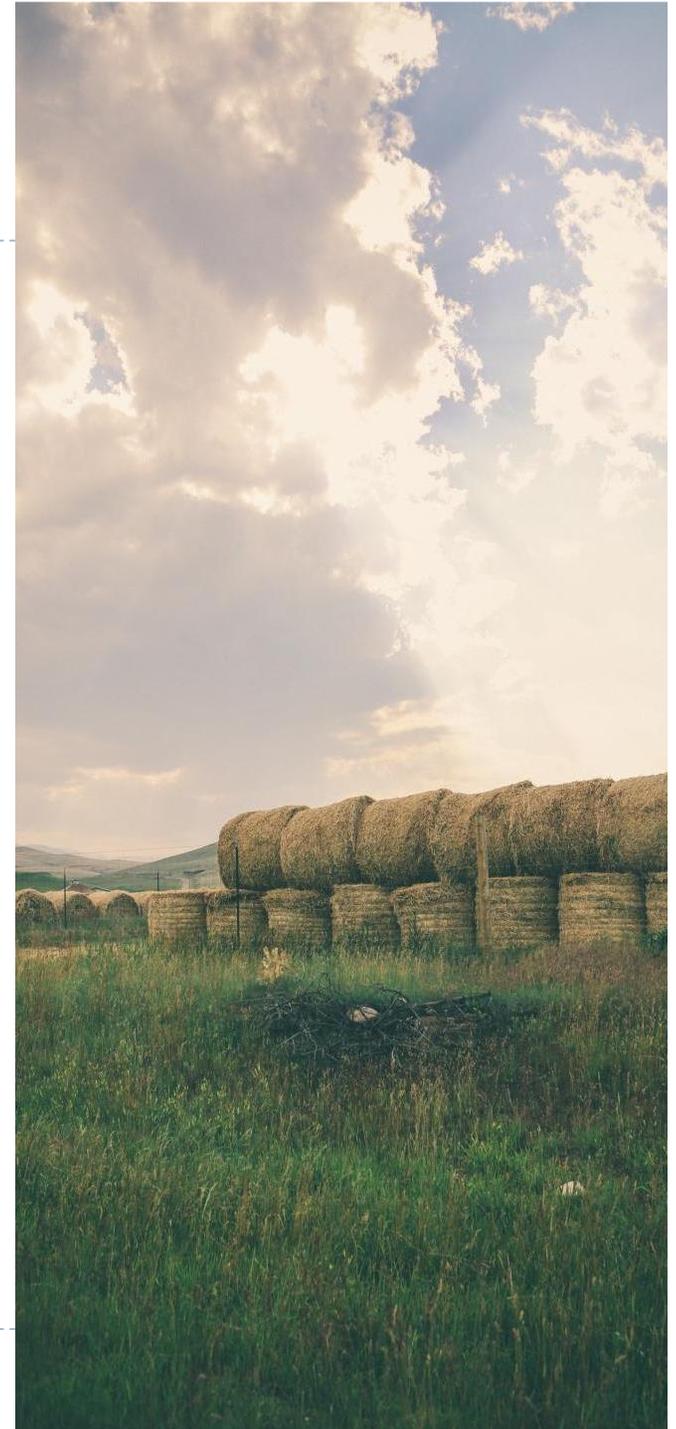
Thank you!

- Contact info: mbaranski@oce.usda.gov

- Current inventory tracks non-CO_2 emissions from burning, but does not account for effect of residue burning on soil N and C

- Will derive burning histories for NRI cropland and grassland points in selected states

- Probability distributions functions will be developed for fire events based on the burning histories

- These input data will be ready to apply in the next National Greenhouse Gas Inventory