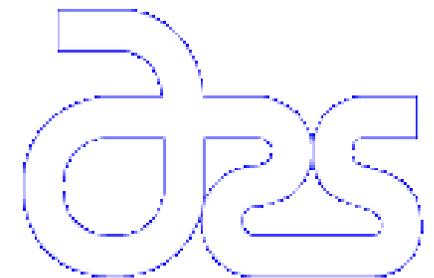




The US Department of Agriculture

Agricultural Research Service



Update

- National Program Leader, Air Quality: Charles Walthall
- Presentation by Gail Bingham, Space Dynamics Lab: Measuring PM emissions from agricultural operations

Update

- New laboratory: Institute for Environmentally Integrated Dairy Management
- Partnership: USDA-ARS, University of Wisconsin, USDA-NRCS, and the National Farm Medicine Center

US Agriculture and Forestry Greenhouse Gas Inventory

- Collaborative effort involving EPA, USDA, Natural Resources Ecology Lab at Colorado State
- Inventory of national-level estimates of carbon dioxide, methane, nitrous oxide, and fluorine containing compounds
- Estimates are from empirical relations and ecosystem models CENTURY and DAYCENT

US Agriculture and Forestry Greenhouse Gas Inventory

- Livestock chapter – emissions from AFO's, pasture and range
- Cropland chapter – emissions from soil amendments, rice production, residue burning – soil carbon sequestration estimates
- Forest chapter – carbon sequestration (forest biomass and soils, urban trees, wood products)
- Energy chapter – carbon dioxide emissions from energy consumption on US farms

Global Warming Potential of Greenhouse Gases

- Carbon dioxide: Atmospheric lifetime (years) 50-200, GWP 1
- Methane : Atmospheric lifetime (years) 12, GWP 23
- Nitrous oxide: Atmospheric lifetime (years) 114, GWP 296

Agricultural Sources of Non-CO₂ Greenhouse Gas Emissions

- N₂O emissions from cropland (45%)
- CH₄ enteric fermentation (26%)
- CH₄ + N₂O grazed lands (15%)
- CH₄ + N₂O AFO livestock waste (12%)
- CH₄ + rice prod. + residue burning (2%)

Soil Carbon Sequestration and Greenhouse Gas Emissions

- GRACEnet – Greenhouse Gas Reduction through Agricultural Carbon Enhancement network
- Measurement and prediction of soil carbon sequestration and greenhouse gas emissions across a range of management practices and systems at 30 locations around the country

Greenhouse Gas Emission Reduction Credits

- Greenhouse gas emissions from an anaerobic lagoon – sprayfield system were compared to an aerobic system involving improved liquid/solid separation, nutrient removal, and composting of solids
- The anaerobic system released 1.08 tons CO₂ equivalent/head/year, while the aerobic system released 0.01 tons CO₂ equivalent/head/year
- Funds from the CO₂ reduction credit could help reduce the higher installation cost of the aerobic technologies