AgWG Beyond 2025 Discussion- Climate Small Group Recommendation #5 Overview

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UMD CBPO

7-18-24

Climate Small Group Materials: Outcomes-agriculture

Steering Committee: meeting page

One Pager Recommendations: page 10

https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/Beyond-2025-Small-Group-Findings-and-Considerations_FINAL.pdf

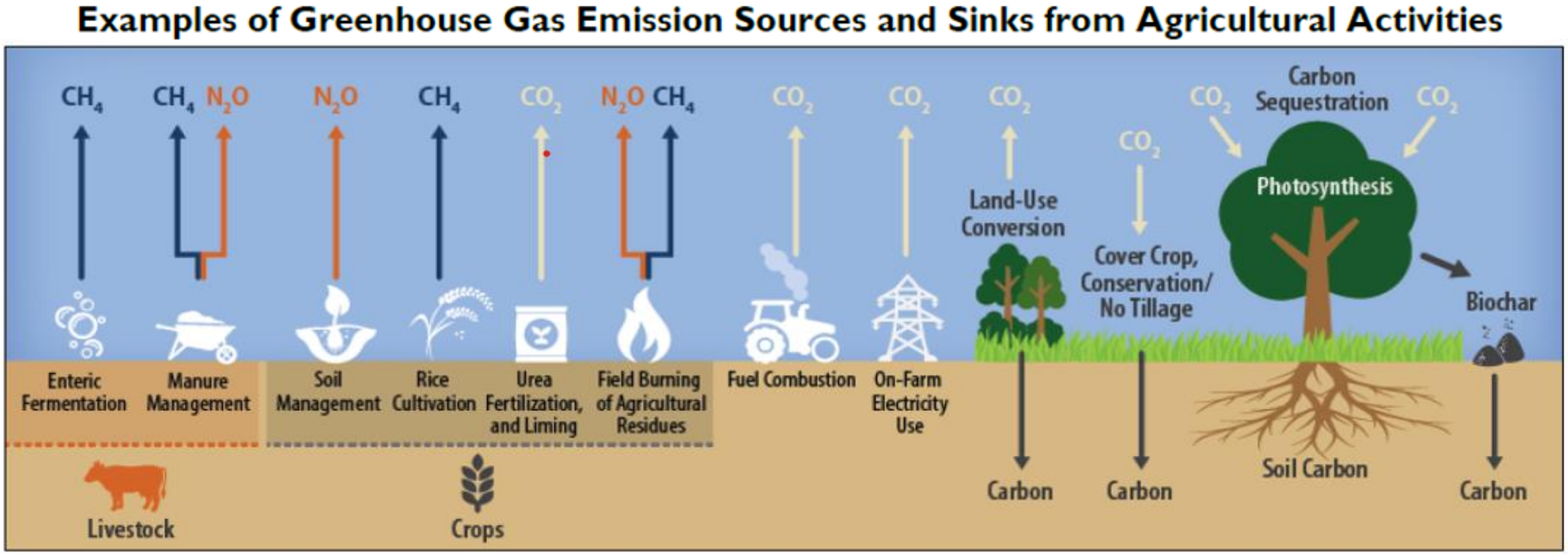
Supplemental Information for Climate Small Group Recommendations: page 6

https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/Supplemental-Information-for-Climate-Small-Group-Recommendations-2.27.24-1.pdf

Vision, Value, Vanguard: Excel Workbook-

https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/Beyond-2025-Climate-Small-Group-Recommendations-2.27.24.xlsx

Connecting Agriculture to Climate

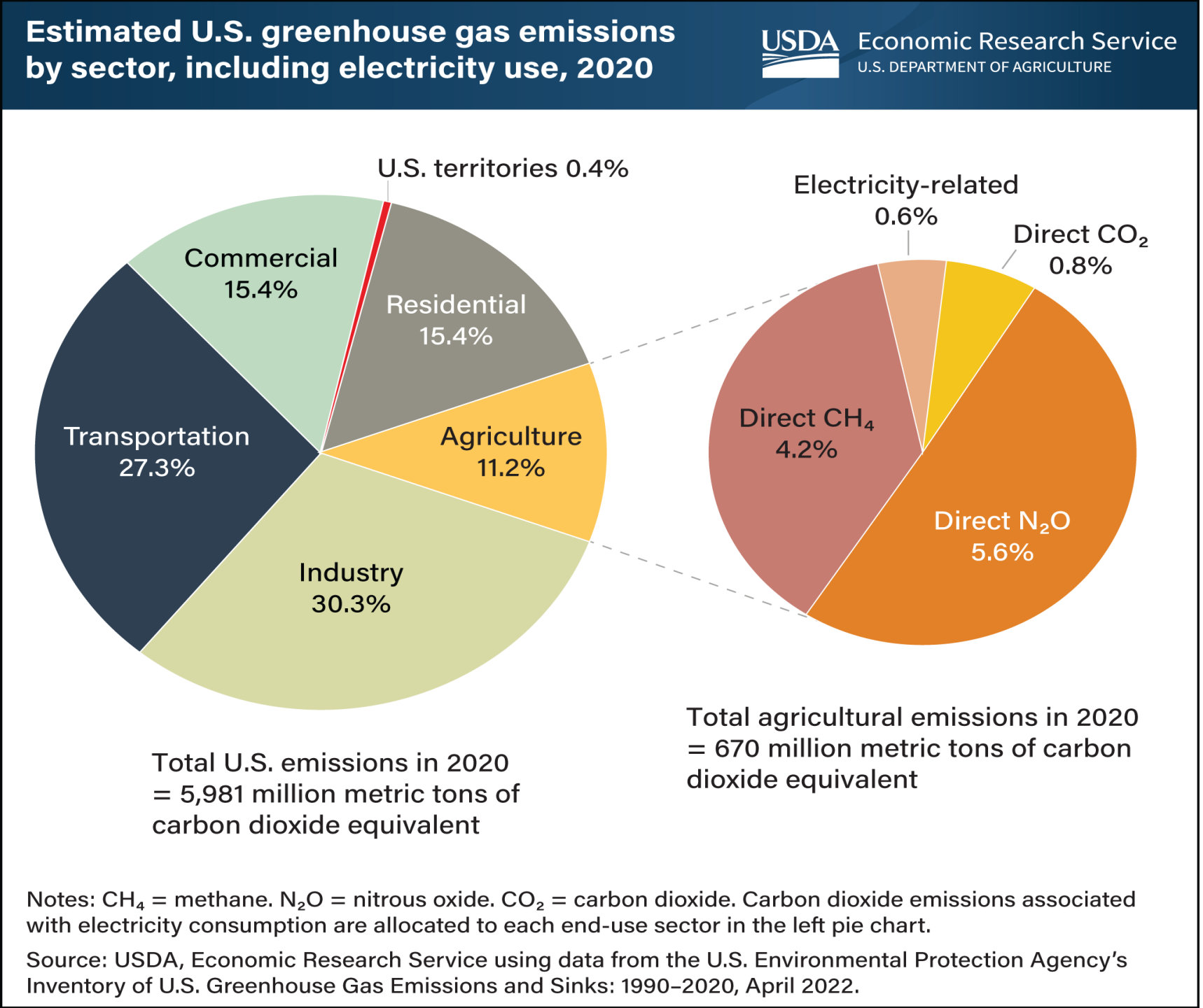


Enteric fermentation- digestive process in ruminant animals

Sources of Agricultural GHG Emissions figure does not include:

- Potentially offsetting agricultural sinks
- Forestry activities, which are accounted for in LULUCF.
- Emissions from generating the electricity that farms use.
- Emissions from activities in the food system more broadly, such as production of agricultural inputs and post-harvest transportation and processing of foods.

Greenhouse Gas Emissions and Sinks in U.S. Agriculture 2020 –Congressional Research Service https://crsreports.congress.gov



- The U.S. EPA 2020 emission estimates for agriculture + forestry sectors
- Largest contribution is **nitrous oxide** (N2O) followed by methane (CH4) and lastly carbon dioxide CO2

Agricultural Production Transformation

Regenerative/Agro-ecological Transition:
6 principals of soil health and associated practices such as cover crops, rotational grazing, animal/crop integration, increased use of agroforestry/perennial cropping
Effects:
Improved: soil, air, water quality, biodiversity, carbon sequestration, economic, climate resilience and equity on farms
Reduced: chemical fertilizer, pesticide, feed inputs, and emissions

HIGH PROFILE CROSS-CUTTING TOPICS

Climate Change

Healthy Watersheds

Clean Water

People

Shallow Water Habitats

Chesapeake Bay Program
40 years of science, restoration and partnership

Food Systems Transformation

Community based agriculture:
Supports local production, sourcing, processing, and consumption, regenerative and organic food, reduced food waste, improved land and healthy food access-vulnerable communities

Effects:
Improved: soil, air and water quality, nutrient density, biodiversity, carbon sequestration, supply chain resiliency, community and economic health and equity
Reduced chemical inputs and emissions

Regenerative agriculture- Decrease sources, increase sinks, improve health and resiliency for all cross-cutting concepts

Key Elements:

- **Systems approach to supporting climate mitigation and community health and resiliency**
  - Soil health
  - Diversification
  - Regional production and consumption

Primary Supporting Reference Materials:

- **Presentation on Effects of Soil Health and Associated Practices: Lisa Blazure (Stroud Water Institute)- PA Soil Health Coalition Coordinator**

- **COP 28 Findings:** https://www.cop28.com/en/food-and-agriculture

- **Fifth National Climate Assessment**: Chapter 11 Agriculture, Food Systems, and Rural Communities Full report available online at: https://nca2023.globalchange.gov/chapter/11/

- **Environmental and Energy Study Institute- Nonprofit Think Tank:** https://www.eesi.org/agriculture-and-climate-series

- **Soil Health and Regenerative Production:** https://farmland.org/soil-health-case-studies/
- https://soilhealthinstitute.org/our-work/initiatives/economics-of-soil-health-systems-on-30-u-s-farms/#overview
- **UMD Extension- Soil Health Lawns**: https://extension.umd.edu/resource/improve-soil-health-climate-resilient-garden/
- **Using climate-smart food and forestry practices:** https://www.usda.gov/climate-solutions
- **NACD, the Soil Health Institute, and NRCS recently released economic findings from 30 farmers who adopted soil health management systems. Link to Story map:** https://storymaps.arcgis.com/stories/04966854d9c84b9784fed74d5b6ddfc2

Primary Food Systems Transformation References:

- **Johns Hopkins Center for a Livable Future:**
https://clf.jhsph.edu/projects/food-system-resilience/resilience-planning-guide

- **Healthy Food Access Policy Compendium for Metropolitan Washington (MWCOG)**
https://www.mwcog.org/committees/food-and-agriculture-regional-member-policy-committee-farm-/

- **Waste to Energy Farm Solution Case Studies:** https://mda.maryland.gov/resource_conservation/Pages/sustainable-chesapeake.aspx

- **USDA: Framework for Shoring Up the Food Supply Chain and Transforming the Food System to Be Fairer, More Competitive, More Resilient:**
https://www.usda.gov/media/press-releases/2022/06/01/usda-announces-framework-shoring-food-supply-chain-and-transforming

- **The Chesapeake Foodshed Assessment: Harry Hughes Center**
https://agnr.umd.edu/sites/agnr.umd.edu/files/files/documents/Hughes%20Center/2019__Chesapeake-Foodshed-Assessment_02.pdf

- **Appalachian Sustainable Development** https://www.asdevelop.org/

- https://www.asdevelop.org/programs-resources/food-hub/

- **Regional Analysis of Nitrogen Flow within the Chesapeake Bay Watershed Food Production Chain Inclusive of Trade,** Paniz Mohammadpour and Caitlin Grady, Environ. Sci. Technol. 2023, 57, 4619−4631

- **Case Study**: Regenerative Local Production: https://whiteoakpastures.com/pages/our-transition

Clean Water Small Group Rec. #4: Provides a broad framework that Climate Recommendation 5 can fall within

- **Increase and incentivize nonpoint source management implementation and identify, track, and address nutrient mass imbalances.**
  - Provide opportunities to increase nonpoint source implementation.
  - Incentivize effective and innovative nonpoint source management across all sectors.
  - Target and empower small-scale watershed restoration that addresses the needs of the community.
  - Promote outcome-based efforts.
  - Address known challenges associated with nutrient mass imbalances to include fertilizers and unknown sources.