



Working agricultural and forest lands are both a source of greenhouse gas (GHG) emissions as well as a system that sequesters or metabolizes GHG.

Three important GHGs should be assessed when quantifying NET GHG benefit:

- carbon dioxide (CO₂)
- methane (CH₄)
- nitrous oxide (N₂O)

Carbon Sequestration OFFENSE

Carbon Sequestration (Increasing the amount of carbon stored in soils or perennials) is beneficial for soil health for many reasons, including improved water management, improved yields and reduced CO₂ emission.

Nitrogen Management DEFENSE

Nitrogen fertilizer is critical for crop production but applying too much at the wrong time can reduce profitability and increase water pollution, air pollution, and N₂O – a GHG. Continuing to improve nitrogen management will save money, protect water and reduce GHG emissions.

A note on Soil Methane

While CH₄ is produced in small amounts in most soils, methane-loving microbes living in the soil metabolize it into the less potent GHG of CO₂. While water saturated soils produce more CH₄, these are small areas in NY. At this time we do not consider CH₄ from agricultural soil to be a significant issue.

NYS Soil is the foundation to all NYS activities

Soil Health contributes to

- increased farm yield and profitability
- improved water and air quality
- increased adaptation & resiliency to extreme weather events
- greenhouse gas mitigation goals

To further this work on climate mitigation, the following research would be beneficial

- Quantify baseline emissions and sinks, best-management mitigation opportunities, co-benefits, financial & environmental costs and benefits for climate mitigation.
- Educate current and next generation farmers about practices.
- Provide science-based information to policy makers about how soils contribute to state Climate Change goals.

FOR MORE INFORMATION: www.blogs.cornell.edu/woodbury

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