AGRICULTURAL MITIGATION OF GREENHOUSE GASES

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Adoption of currently available agricultural technologies has the ability to reduce greenhouse gas emissions from the agriculture sector and in some cases provide mitigation offsets from other sectors of the economy. Research can provide the data, models, and the understanding needed to assess the potential for soil C sequestration and mitigation of greenhouse gases in agriculture. Carbon accumulation in agricultural soils can be greatly improved by various forms of crop, soil, and animal management. Improved efficiency of methods for soil C measurement is important to better estimate terrestrial C inventories and fluxes at a regional and global scale. Recently, technologies have focused on measuring soil C *in situ* and upscaling to larger scales using available databases and models.

Economic analysis suggest that soil carbon sequestration and mitigation of greenhouse gas emissions from agriculture are among the most beneficial and cost effective options available for reducing greenhouse gases, particularly over the next 30 years until alternative energy sources are developed and become economic feasible. Managing agricultural soils for sequestering C will result in additional benefits. Increasing soil organic C include increased crop productivity, enhanced soil, water, and air quality and reduce energy inputs.

The keys to successful implementation of agricultural greenhouse mitigation programs include accurate quantification and verification methods and tools to assess the impacts of policies and economic factors on carbon sequestration rates and the rural economy. Furthermore, policies to foster agricultural greenhouse mitigation need to consider their economic impacts, as well as the potential collateral effects on other greenhouse gas emissions, sustained agricultural production, and water and soil quality.