USDA Development of Technical Methods and Tools for Farm-Scale GHG Estimation

A new project is underway at the U.S. Department of Agriculture (USDA) to provide tools that will help farmers, ranchers and forest land owners to assess the greenhouse gas (GHG) footprint of their operations. The project will bring together scientific experts from across USDA, other Federal agencies and U.S. research institutions in order to develop a method for estimating changes in GHG emissions and carbon sequestration for farm, ranch and forest operations. The development of these technical guidelines and tools is mandated in the Food, Conservation and Energy Act of 2008. The goal is that the new tools will provide a comprehensive, transparent approach to calculating changes in GHG emissions across all management activities within a farm, ranch or forest operation.

Project methods will include estimation of carbon sequestration and GHG emissions reductions associated with farm, ranch and forest management activities such as the following:

- Cropland Soils
- Agroforestry
- Enteric fermentation
- Field residue burning
- Fertilizer management
- Forest management
- Manure management
- Lime applications
- Afforestation
- Grazing land management
- Wetland soils
- Rice production

Key considerations in the development of the technical methods and estimation tools are shown in the box below.

The effort aims to capture the state of the science and to provide user friendly tools and guidance to farmers, ranchers and forest land owners who are interested in quantifying the GHG benefits of management changes within their operation. The guidance and tools will also be useful to USDA in assessing the ecosystem services benefits of current and future conservation programs and initiatives.

1. ***Transparency*** – Assumptions and methodologies clearly explained to facilitate replication.
2. ***Consistency*** – The methods and estimates should be internally consistent with other years and, to the extent possible, with other USDA inventory efforts.
3. ***Comparability*** – Requires that the estimates of emissions and sequestration reported by one entity be comparable to the estimates being reported by others.
4. ***Completeness*** – An inventory must account for all sources and sinks, as well as all greenhouse gases to the greatest extent possible.
5. ***Accuracy*** – Estimates should be accurate in that they are systematically neither over nor under true emissions or removals as far as can be judged.
6. ***Cost effectiveness*** – Balance between the relative costs and benefits of additional efforts to improve the inventory or reduce uncertainty.
7. ***Ease of use*** – The level of complexity of the user interface and underlying data requirements.

For more information, please visit

http://www.usda.gov/oce/climate_change/techguide, or contact Marlen Eve, USDA Climate Change Program Office, at meve@oce.usda.gov or 202-401-0979.