NRCS
Global Climate Change
(Air Quality and Atmospheric Change)
March 8, 2011

NRCS Air Quality and Atmospheric Change (http://www.airquality.nrcs.usda.gov/)
The USDA-NRCS helps private landowners conserve our natural resources, and air resources are among those. In fact, of the 79 resource concerns that are of focus to the NRCS, 12 of them are in air resources. These 12 can be broadly classified into the following air quality and atmospheric change issues:

-Particulate Matter
-Ozone Precursors
-Odor
-Greenhouse Gases and Carbon Sequestration

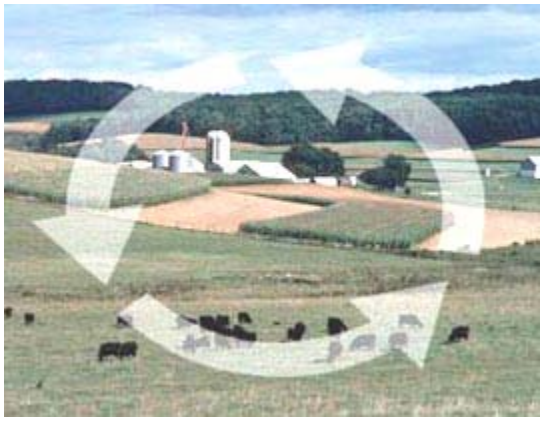
Air Quality Online Training

-Air Quality, Climate Change, and Energy
-Why Should We Care About Air Quality?
-Air Quality Resource Concerns
-Greenhouse Gases and Carbon Sequestration

NRCS - Global Climate Change (http://soils.usda.gov/survey/global_climate_change.html)

Reducing Greenhouse Gas Emissions and Sequestering Carbon

- Greenhouse Effect and Climate Change
- U.S. Policy and Climate Change
- Climate Change and Agriculture
- Market-Based Programs & Trading
- 1605(b) Voluntary Reporting Registry
- Carbon Management Reporting Tool: COMET-VR
- Incentive Programs and Assistance for Producers
- Climate Change and Effects on Ecosystems
- Resources and Publications
- Meetings



Climate Change and Agriculture

Climate Change Impacts on Agricultural Production

The Natural Resources Conservation Service (NRCS) is focusing global climate change efforts in several areas: 1) quantifying the effects of conservation practices on greenhouse gas emissions and carbon sequestration; 2) refining incentives in conservation programs to address the effects of climate change on agriculture; 3) developing and encouraging the use of conservation practices and systems that reduce GHG emissions; and 4) enhance opportunities to increase farm profitability on the emerging voluntary emissions trading markets. Agriculture and forestry activities can contribute to the reduction in atmospheric buildup of GHGs in three important ways: sequestration, emissions reductions, and fossil fuel substitution.

Incentive Programs and Assistance for Producers

Incentives and Assistance in NRCS

The USDA has instituted new standards targeting specific portions of incentive programs that encourage carbon sequestration and greenhouse gas (GHG) emissions reductions. Some practices that decrease GHG emissions or sequester carbon may require a capital investment or increase farm-operating costs. The USDA is providing incentives and supporting voluntary actions by private landowners in targeting GHG and carbon sequestration through a portfolio of beneficial conservation programs.

NRCS Conservation Practices and Systems that Save Money and Benefit the Environment

Agricultural and forestry production systems offer a wide variety of opportunities to increase carbon sequestration (carbon storage) and reduce greenhouse gas emissions. Many conservation practices mitigate the negative effects attributed to climate change while providing many other benefits and enhancements to the producer and the environment. Conservation practices such as no-till have the potential to save an estimated 217 million gallons of fuel and as much as $480 million annually while increasing the carbon stored in soils and improving soil quality.

Carbon Management Reporting Tool: COMET-VR

The Carbon Management Online Tool for Voluntary Reporting (COMET-VR) is a decision support tool developed jointly by the NRCS and Colorado State University for calculating soil carbon stored or sequestered by changing land management practices. Producers enter location information, past, present, and planned land management practices and obtain an estimate of the change in carbon sequestered. This tool is also sanctioned for reporting carbon sequestration in the DOE 1605(b) Voluntary Greenhouse Gas Emissions Reporting Registry. In the future, interested producers using COMET-VR will be able to transfer information electronically to the 1605(b) electronic registry forms.

Rapid Carbon Assessment

The objectives of the USDA Natural Resources Conservation Service (NRCS) project for the Rapid Assessment of U.S. Soil Carbon for Climate Change and Conservation Planning are as follows:

>To evaluate differences in soil carbon associated with:
(1) Ecosystems.
(2) Agricultural management systems.
(3) Land uses and apply these to improve existing decision support tools.

>To develop a scientifically based and statistically valid baseline inventory of soil Carbon stocks for the United States.

We expect this initiative to produce the following products:

-A preliminary short-term estimate of U.S. carbon stocks based on existing Soil Survey Geographic (SSURGO) data. In contrast to existing SSURGO carbon stock estimates, this estimate will be enhanced by incorporating appropriate land cover and measured pedon data.

-A field inventory of amounts and distribution of U.S. carbon stocks stratified by soil and ecosystem, including state of ecological site, agricultural management system, and land use.

-A publicly accessible soil carbon database that can be used for model validation and development.

NRCS currently has two Strategic Initiatives towards Climate Change Adaptation and Mitigation:

Initiative #1 - Assist farmers , ranchers, and forestland owners and communities in adopting conservation measures to mitigate or adapt to the impacts of natural system variability associated with climate change.

Initiative #2 - Assist farmers, ranchers, and forestland owners to increase carbon sequestration in agricultural soils, forests, and other perennial vegetation.

NRCS National Water and Climate Center (http://www.wcc.nrcs.usda.gov/)

Climate Monitoring

Snow Survey and Water Supply Forecasting (SS-WSF) Program - Conduct snow surveys and develop accurate and reliable water supply forecasts. Began in 1935, the SS-WSF Program has grown into a network of more than 1,200 manually-measured snow courses and over 750 automated SNOTEL stations in 13 Western States and Alaska. The Program provides streamflow forecasts for over 740 points in the West.

SNOTEL (SNOwpack TELemetry) - An extensive, automated system designed to collect snowpack and related climatic data in the Western United States and Alaska. The modern SNOTEL network also provides data for climate studies, air and water quality investigations, climate change, and endangered species habitat analysis.

SCAN (Soil Climate Analysis Network) - A comprehensive, nationwide soil moisture and climate information system designed to provide data to support natural resource assessments and conservation activities. It focuses on agricultural areas of the U.S. monitoring soil temperature and soil moisture content at several depths, soil water level, air temperature, relative humidity, solar radiation, wind, precipitation, barometric pressure, and more. It began as a pilot project in 1991. There are currently more than 150 stations in 39 States and an ever-growing list of requests for new sites across the nation.