Agricultural Air Quality Update: USDA-NRCS

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Overview

• Programs
• Training
• Technology
Program Support for Air Resources

- Conservation Technical Assistance (CTA)
- Environmental Quality Incentives Program (EQIP)
- Conservation Innovation Grants (CIG)
- Conservation Security Program (CSP)
Conservation Technical Assistance (CTA) Program

• Foundation for all NRCS science and technology
• Funds technology transfer
  – Interim and final practice standards
  – Measurement tools
  – Models
CTA Program

• Reviewing practice standards
  – Identify changes to existing standards
  – Identify needs for new standards

• 3 new CA interim standards for AQAC
  – Dust control on unpaved roads and surfaces
  – Stationary engine replacement/upgrade
  – Precision pest control application
Environmental Quality Incentives Program (EQIP)

- Voluntary program
- Promotes agricultural production and environmental quality
- Provides financial and technical incentive payments and cost-share assistance
EQIP

- Over $1 billion allocated for FY07
- $648 million in total national EQIP contracts for FY06
  - $26 million of those were AQAC-related contracts
- 113 FY06 EQIP contracts covering almost 25,000 acres in Indiana were AQAC-related
- Practices include:
  - Windbreaks
  - Manure/nutrient management and utilization
  - Conservation tillage to reduce PM
  - Also, irrigation pump engine replacement in CA
Conservation Innovation Grants (CIG)

- To stimulate the development and adoption of innovative conservation approaches and technologies
- Cooperating producers must be “EQIP eligible”
- National and State grants; up to 50% cost share
CIG 2007 - National

- 51 national grants in 2007 for $19.3 million
  - 6 with full AQ focus for ~$2.6 million
  - 11 others with partial AQ or renewable energy focus for ~$4.9 million
- Examples:
  - Michigan State University – Development of a National Air Quality Self Assessment Tool
  - California Association of Resource Conservation Districts – Dust Control Unit
CIG Technology Transfer

- Committee developing a strategy to better move CIG technology into NRCS planning and programs, and into US agriculture
- Improving technology transfer a key goal
  - More emphasis in 2007 on technology deliverables and transfer
  - National technical leaders involved in review of CIG 2007 deliverables
  - CIG Showcase at SWCS Tampa, July 2007 (CA Winegrowers—AQ)
Conservation Security Program (CSP)

- Voluntary program to support ongoing stewardship of private agricultural lands
- Provide payments for maintaining and enhancing natural resources
- $18 million on AQ enhancements from 2006-2015
- 31 states with some AQ emphasis
CSP Air Resource Enhancement Goals

Managing

• Particulate matter (PM$_{10}$, PM$_{2.5}$)
• Odors
• Airborne chemical drift (working with water quality)
• Ozone precursors (VOCs, NOx)
• Greenhouse gas emissions (CO$_2$, CH$_4$, N$_2$O) and increasing carbon sequestration
CSP
AQAC Job Sheets

- New job sheets prepared for anticipated FY08 CSP
  - Particulate matter
  - Ozone precursors
  - Odors
  - Greenhouse gases and carbon sequestration
  - Airborne chemical drift
CSP AQAC Job Sheets

- Over 30 different activities for addressing AQAC
- Examples:
  - Install, maintain, and enhance windbreaks
  - Manage prescribed burning
  - Manure and feed management
  - Engine replacement
  - Biofilters
  - Precision pesticide application
Air Quality, Climate Change and Energy (ACE) Working Group

- Coordination/Integration of Venture Goals within the NRCS
- 5 Focus Areas
  - Policy
  - Planning and Programs
  - Technology and Training
  - Data Integration
  - Communication
Training and Technology Update

• Training
• Tools
  – COMET-VR
  – SNAP
  – Odors
  – Particulate Matter
  – Burn/Smoke Outlook
• A training curriculum plan has been developed
• AQAC/Energy pilot training was provided to CO NRCS staff in June
• Second pilot training is scheduled for PA NRCS staff in December
• Advising ag AQAC training development projects funded by NRI and Western SARE
COMET-VR Overview

- www.cometvr.colostate.edu
- CarbO Management E valuation T ool -- V oluntary R eporting of GHGs
- On-line decision support tool for estimating soil carbon sequestration
- Calculates annual carbon change using a dynamic Century model simulation
- For official GHG reporting and potential for carbon credit trading
- Interfaces to a land use database
• Version 1.1 released April 16
• Newly expanded for thousands of additional scenarios—for crop and rangeland
• Version 1.2 (agroforestry) out this spring
• Version 1.3 (incl. N2O) coming in 2008
Future AQAC Tools

• NOSE
  – NRCS Odor Siting Evaluator
  – Will be used to evaluate odor impacts from animal operations and determine the effects of operational changes and application of management practices/activities
Future AQAC Tools

• SNAP
  – **S**imple **N**RCS **A**QAC **P**lanning Tool
  – Given inputs regarding an agricultural operation, SNAP will assess AQAC resource concerns and identify potential management practices/activities for addressing recognized concerns
Future Tools

- Particulate Matter Emissions Estimator Tool
  - Based on CA PM emission factors
  - Determine PM emissions reductions from application of various practices
Future Tools

• Ag Burn Outlook
  – Dispersion conditions for Today & Tomorrow
    • Red = No Burn
    • Yellow = Marginal
    • Green = Burn Ok
  – Based on: Surface and transport winds, mixing height, ventilation index
Future Tools

- WEPS
  - Wind Erosion Prediction System
  - Working with ARS, this tool will predict PM10 moving off-site
Other Tools

- **BlueSky Smoke Modeling Framework**
  - Surface PM$_{2.5}$ concentrations from fires
  - 12-hr trajectories from the fires
  - Other GIS and meteorological data
  - Web-based

http://www.blueskyrains.org
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