

National Research Initiative Air Quality Program

\$5 Million in 2006

June 15, 2006 deadline

www.csrees.usda.gov/airquality.html

NRI Long Term Goals

- Establishing emission reduction targets, based on sound science, that will significantly improve air quality and protect human and environmental health
 - Better environmental protection from nitrogen deposition
 - Improved air quality by reducing ammonia a precursor to fine particulate matter
- Increase farm adoption of one or more best management practices to reduce agricultural emissions
- Better understanding of environmental fate of agricultural atmospheric emissions

NRI Air Quality Program Statistics

Funding Year	2003	2004	2005
# of proposals	62	46	42
# of proposals awarded	13	11	12
% success	21.0	23.9	28.6
Average award size (standard)	\$417 K	\$455 K	\$441 K
Average award duration	2.6 yrs	2.5 yrs	2.8 yrs

2005 Funded Topics

- Remotely Sensed Measurements of Air Quality Emissions from Cropland Burning
- Size Distribution and Sampling Performance of Particulate Matter in CAFOs
- Properties of Particulate Matter Emissions from Large Animal Feed Lots
- A New Approach to Emissions from Animal Husbandry Facilities
- Bioremediation of Odor Emissions from Animal Feeding Operations
- Surface Aeration System to Control Odor from Open Liquid Manure Storage Facilities
- Measuring and Modeling Gaseous Losses of Nitrogen from Irrigated Crops
- Air-Surface Exchange of Ammonia Over Agricultural Crops
- In-Canopy Characteristics of Ammonia in Forest and Agricultural Landscapes
- Developing and Validating a Process-Based Ammonia Emission Model for CAFOs
- Dietary Nitrogen Manipulation on Ammonia Emissions from Dairy Cattle
- Improved Diet Impacts on Broiler Ammonia Emissions

Powers, Modeling the Source of Gaseous Emissions from Animal Feeding Operations



Objectives: establish emission data for ammonia, hydrogen sulfide, nitrogen oxides, sulfur oxides, methane, and specific volatile organic compounds from swine, poultry, and dairy cattle when fed typical and reduced protein diets in a controlled atmospheric environment.

Approach: animals will be fed a typical and a reduced crude protein diet supplemented by different kinds of amino acids to determine any potential reductions in emissions. Data will be used to validate an existing farm-emissions model

Impacts: Potential to dramatically reduce emissions from concentrated animal feeding operations (up to 48% NH₃ reduction in swine). The data generated from this project will be used in a farm-emissions model to provide a mass-balance of nutrients, such as nitrogen, to help inform U.S. regulatory policy.

Workshop on Agricultural Air Quality Potomac, MD, June 5-8, 2006

Annual all-investigator meeting

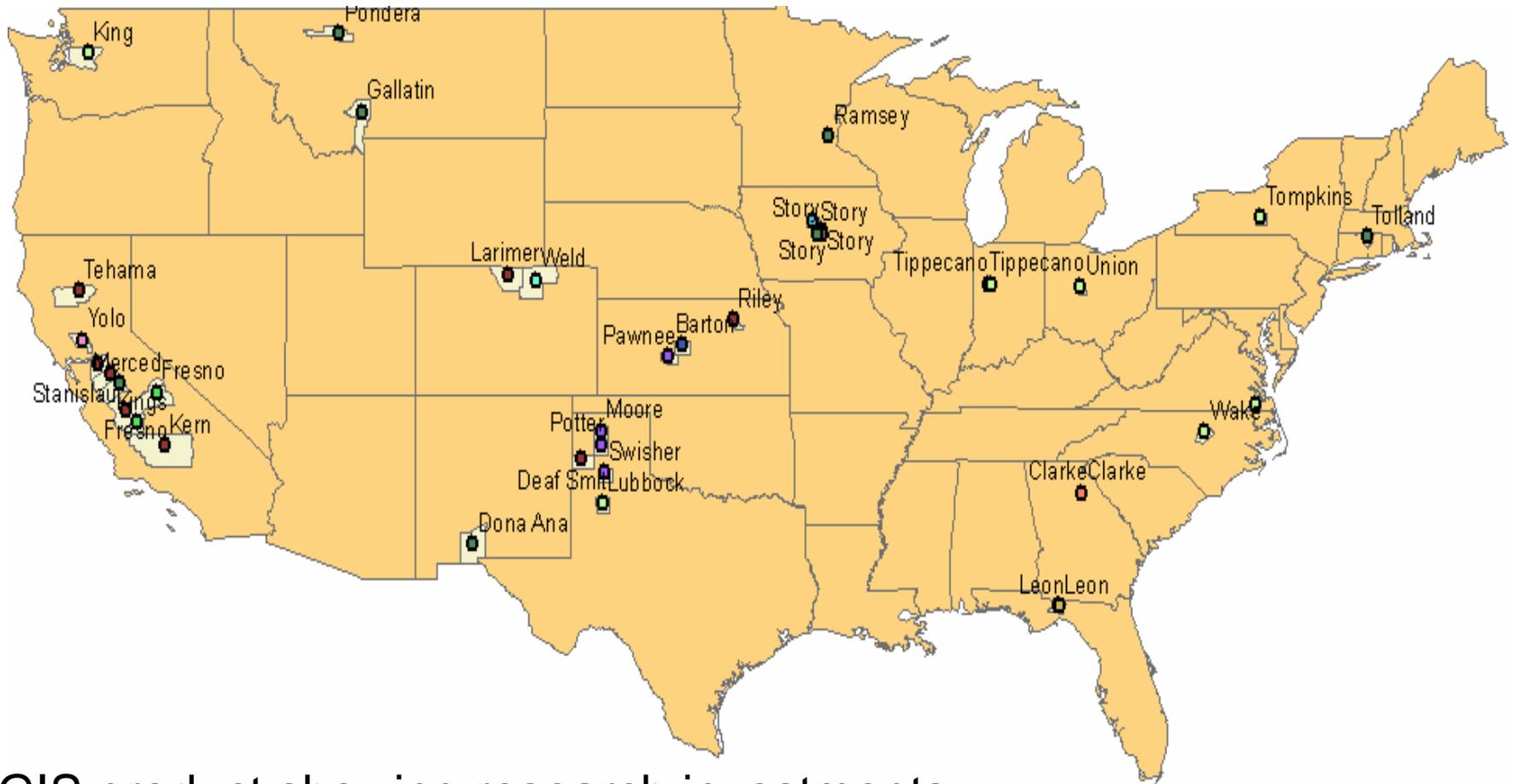
Presentations on the web and CD to PIs and stakeholders

Special journal issue on agricultural air quality

Review document for the National Academy of Science



CSREES Air Quality Research Investments



GIS product showing research investments
by non-attainment areas/N deposition