Foreword

The "Workshop on Agricultural Air Quality: State of the Science" represents a significant milestone for air quality research and technology transfer at the United States Department of Agriculture (USDA). Until several years ago, research on air quality at USDA and its partner institutions was a very loose collection of projects scattered about the country with very little programmatic institutional support. Environmental concerns and increasing regulatory pressures on agriculture related to air quality led to the formation of the USDA Agricultural Air Quality Taskforce (AAQTF) in 1996. The AAQTF provided recommendations to the Secretary of Agriculture regarding priority research areas. The AAQTF also recommended the allocation of more resources to air quality research. These recommendations, coupled with increased awareness by the land-grant university community, have resulted in steadily increasing resources for agricultural air quality research and extension. Resources have grown almost ten-fold in the past decade, from $2-3 million per year in 1996 to approximately $20 million per year in 2006.

One of the most significant increases came in 2003 when the USDA National Research Initiative (NRI), administered by the Cooperative State Research, Education and Extension Service (CSREES) created a new $5 million per year air quality research program. The NRI Air Quality program seeks to provide sound science that protects the environment while maintaining a viable agricultural production system. This is primarily a research program that focuses on developing quantitative emissions data for agricultural production practices and improving information about the measurement, control, fate, and transport of odor, gases, and particulate matter. This program also includes research on emissions and means of reducing greenhouse gases (GHGs), such as nitrous oxide and methane. In addition to research, the NRI Air Quality program engages in outreach activities that include transferring technologies and best practices to producers and the regulatory community to lessen the production and transport of air pollutants and greenhouse gases. In its third year of funding, the NRI Air Quality Program has funded a cumulative total of $15.4 million in research and outreach activities.

As part of the post award management strategy of the NRI Air Quality Program, a workshop was solicited as part of the 2004 request for applications. The solicitation asked for some very specific outputs from the Workshop. First, a pressing need for U.S. agriculture is to update and add to the emissions inventory for agricultural production practices. Second, a catalogue of best practices for reducing and mitigating agricultural emissions is needed. These two needs represent two of the emphasis areas in the NRI solicitation and have received substantial research investments. One of the primary goals of this Workshop is to bring together the science and experiences from researchers and stakeholders to produce these two documents. Participants in the Workshop will play a critical role in providing data, technologies and practices, and review of these documents.

Developing sound research needed for agriculture in an increasingly regulated environment is a particularly challenging opportunity. The immediacy of policy and laws to protect people and resources contrasts with the much slower process of problem solving based on hypothesis testing and technology transfer. The unique mission of the CSREES Air Quality Program — to foster sound science, enhance stakeholder education and competencies, and transfer this knowledge through high-impact extension programs — is critical in developing effective agricultural air quality policies. Participation in and the resulting outputs from this Workshop will provide the research and outreach necessary to assist regulatory authorities in developing and implementing appropriate, scientifically-based permit options for agricultural producers based on high quality peer-reviewed emission data. Practices documented at this Workshop should enable the development and evaluation of emission control technologies that are both effective and economical for producers.

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