United States Department of Agriculture
Natural Resources Conservation Service

Special Environmental Concerns

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Criteria Pollutants

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Wild and Scenic Rivers

CLEAN AIR ACT - Criteria Pollutants

"Criteria pollutants" for agriculture are excessive concentrations of particulate matter and ozone in the atmosphere that may adversely impact human health.

What is it?

Criteria pollutants are those contaminants in the atmosphere for which U.S. EPA has used health-based criteria to establish National Ambient Air Quality Standards (NAAQS). The U.S. EPA has currently promulgated NAAQS for six criteria air pollutants, but the primary criteria pollutants of concern for agriculture are particulate matter and ozone.

Why is it important?

The NAAQS are intended to represent the maximum concentration of a particular pollutant in the ambient air that will not adversely impact public health or welfare, which includes aesthetic, economic, and other non-health effects. Areas that are designated as nonattainment, meaning that concentrations of a criteria pollutant are not in compliance with the NAAQS, are subject to greater regulatory scrutiny than areas that are in compliance with the NAAQS (i.e., attainment areas). Sources that are considered to contribute to an area's nonattainment status will be subject to more stringent control and permitting requirements. Requirements for each nonattainment area vary and are tailored to the specific needs of the nonattainment area.

What can be done about it?

Ozone is not typically emitted directly from air pollutant emission sources. Rather, it is formed in the atmosphere by chemical reactions. As such, emissions of oxides of nitrogen (NO_x) and volatile organic compounds (VOCs) are regulated as precursors to ozone formation instead. Particulate matter may be either emitted directly, such as dust or smoke, or formed in the atmosphere from other pollutants, such as ammonia, NO_x, VOCs, and sulfur dioxide (SO_2). Agriculture does not produce significant amounts of SO_2, so reducing emissions of directly-emitted particulate matter, NO_x, ammonia, and VOCs from agricultural sources will help to mitigate agriculture's contribution to concentrations of particulate matter and ozone in the ambient air.

Clean Air Act - Criteria Pollutants at a Glance

Problems / Indicators - Nonattainment area for ozone and/or particulate matter	
Causes	Solutions
• Dust emissions • Poor smoke management • Wind erosion • Ammonia release • VOC emissions • NO_x emissions	• Dust control, windbreaks • Proper smoke management • Maintain surface residue/cover • Proper manure management • Proper nutrient management • Follow state/local permitting guidance and procedures

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CLEAN AIR ACT - Regional Visibility Degradation

The Clean Air Act recognizes the issue of "regional visibility degradation" as excessive concentrations of particulate matter and other pollutants in the atmosphere that degrade visibility in national parks and other "Class I areas".

What is it?

Regional visibility degradation occurs when concentrations of particulate matter, oxides of nitrogen (NO_x), and sulfur dioxide (SO_2) in the atmosphere hinder the ability to view distant objects or vistas. Of these, the primary visibility-degrading pollutants of concern for agriculture are particulate matter and NO_x.

Why is it important?

Class I areas are areas of national or regional natural, scenic, recreational, or historic value that are given special protection under the Clean Air Act. One of these special protections is preservation of the visibility of scenic vistas within the Class I areas. EPA has developed the Regional Haze Rule that directs states to establish goals for improving visibility in national parks and wilderness areas. States are required to develop long-term strategies for reducing emissions of air pollutants that cause visibility impairment. The goals and requirements vary by state and by Class I area.

What can be done about it?

Reducing agricultural emissions that contribute to increased concentrations of particulate matter and NO_x in the air, especially from sources near a Class I area, will help mitigate agriculture's contribution to regional haze issues. These emissions include directly-emitted particulate matter, such as dust and smoke, and NO_x. Additionally, emissions of ammonia and volatile organic compounds (VOCs), as well as NO_x, can contribute to fine particulate matter formation in the atmosphere. Many common NRCS practices can be used address agriculture's contribution to regional visibility degradation by reducing emissions of these pollutants.

Clean Air Act - Regional Visibility Degradation at a Glance

Problems / Indicators - Regional haze and poor visibility of scenic areas	
Causes	Solutions
• Dust emissions • Poor smoke management • Wind erosion • NO_x emissions • Ammonia emissions • VOC emissions	• Dust control, windbreaks • Proper smoke management • Maintain surface residue/cover • Proper maintenance and operation of combustion sources • Proper nutrient and manure management • Reductions in pesticide use

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