NRCS
Natural Resources
Conservation Service

United States Department of Agriculture
Natural Resources Conservation Service

Air Quality and Atmospheric
Change National Technology
Development Team

Fact Sheet -- Air Quality and Atmospheric Change

Odors and Animal Operations

What are Odors?

Agricultural odors are a complex mixture of gases that can evoke a wide range of emotional and physiological responses when encountered via the sense of smell. Odors are mainly a community or individual perception issue; although some odorous compounds can cause health problems when encountered in high concentrations.

Many different compounds can be the potential cause of odors from agricultural operations. These compounds can generally be classified as VOCs, ammonia, or odorous sulfur compounds. The odor component of the NRCS Air Quality and Atmospheric Change (AQAC) resource concern is related to the potentially negative community and individual perception of the effects of odorous compounds.

Where are Odors an Issue?

Odors are typically a local issue. Greater emphasis on addressing odors is likely to occur in areas that have negative community and individual perceptions of odors, especially in areas with a strong rural/urban interface.

How Do Animal Operations Affect Odors?

Animal operations can create and/or impact odors in a variety of ways, including:

- Biological organisms (including animals) emit VOCs (including odorous compounds) naturally.
- The breakdown or decomposition of biological materials such as manure, feed, or mortalities can produce VOCs (through the incomplete breakdown/ decomposition of bigger carbon compounds), ammonia, and odorous sulfur compounds (typically under anaerobic conditions).

Helping People Help the Land

What Can I Do?

Many common practices and management activities can help reduce the likelihood of odor impacts from animal operations. The following suggestions are not all-inclusive but offer some options that are available for managing odor emissions. Talk with your NRCS conservation professional about what specifically will work best on your land.

Concentrated Operations

- Maintain appropriate cleaning techniques for spilled feed, bedding, etc.
- Maintain appropriate moisture content in and on open lot surfaces.
- Utilize manure management techniques that minimize, recover, or control emitted gases.
- Utilize feed management or feed additives to minimize intestinal VOC production, minimize manure production, or alter manure nutrient characteristics (i.e., reduce volatile nitrogen and sulfur compounds).

Grazed Operations

- Use prescribed grazing and/or range management to minimize manure accumulation.
- Implement alternatives to the burning of excess biomass on rangelands through prescribed grazing or the development of biofuels.
- When rangeland burning is necessary, promote an efficient and effective burn through the development and implementation of prescribed burn and smoke management plans.

Miscellaneous

- Avoid spilling feed or manure, and clean materials up quickly when a spill does occur.

For More Information

NRCS is currently developing guidance and conservation practice standards for addressing odors at animal operations. For more information, contact the Air Quality and Atmospheric Change National Technology Development Team (http://www.airquality.nrcs.usda.gov/) at the West National Technology Support Center in Portland, Oregon. (Primary contact: Greg Zwicke, 503-273-2434, greg.zwicke@por.usda.gov)

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