

Managing Nuisance Odor and Dust from Poultry Growing Operations

Saqib Mukhtar, John Carey and Ron Lacey*

As towns and suburbs spread into agricultural areas, new homes, places of worship, schools and businesses may be built near livestock and poultry operations. Almost all agricultural operations generate some odor and dust. This may not be a problem for people who are accustomed to living in an agricultural setting. However, new residents may find the odor and dust to be a nuisance.

With the following practices a producer can reduce odor and dust problems in a poultry growing operation.

Constructing the house

If you are building a new poultry house, consider whether neighbors are near enough to be affected by odor and dust. Could future development come close enough to create a problem? How might the local topography, prevailing winds, and vegetation affect the situation?

Managing the house

Keep litter as dry as possible to slow the microbial action that creates odor. Litter should contain no more than 25 to 35 percent moisture throughout the house.

Operate the ventilation system at or above the minimum recommended rate, and make sure it is functioning properly. Clean fans and fan shutters after each flock; dirty fans and shutters can reduce airflow by more than 30 percent. If the building does not have internal mixing fans, install them to increase air circulation within the building.



Replace water misting cooling systems with evaporative cooling pads on the inlets of tunnel-ventilated houses. If you do use a misting system, adjust it so that excess moisture will not fall on the litter. Ensure that evaporative cooling pads have the correct water flow and that water is not leaking onto the litter. Also prevent leaks in the drinking system. Replace bell drinkers with nipple drinkers to minimize spillage.

Disposing of dead birds

Collect carcasses frequently, before odors develop. Put them in a covered container and transport them to the disposal facility or composting facility immediately.

Composting and storing litter

Composting litter and dead birds reduces both odor and the volume of waste generated. If you operate your own litter storage and composting facility, make sure all farm workers who will handle or transport litter are properly trained. While a well-run composting system reduces odor, an improperly run system may actually cause more odor problems.

*Assistant Professor and Extension Agricultural Engineer, Professor and Extension Poultry Specialist, and Associate Professor and Agricultural Engineer, The Texas A&M University System.

Choose the right design for your facility, so that it will be an integral part of the operation's waste management plan. The USDA-Natural Resources Conservation Service and other agencies have guidelines for the proper design and construction of a poultry composting facility.

Situate the storage and composting facility near a natural windbreak, with attention to the direction of prevailing winds. Or, construct a windbreak if necessary. The less air movement there is around such facilities the less problem there will be with odor and dust moving off-site. Do not build a facility in a wet area or in runoff or drainage pathways.

If litter will be stored temporarily (less than 1 month), keep it covered with a waterproof tarp that is secured on all sides. Covering the litter helps keep it dry. Do not layer wet and dry litter in a stack. Check stacked litter regularly to make sure there are no hot spots (wet spots where microbial activity causes heat to build up) that could combust and start a fire.

Inspecting the compost takes time, and should be done by someone trained to handle problems. If waste is properly composted, its odor is much less noticeable when it is transported and applied to land.

Applying litter to land

Reducing odor and dust problems from litter applications is a matter of common sense.

Before you schedule an application, talk with neighbors to make sure the application is not made on a day when they have planned outdoor activities. Do not apply litter on weekends or holidays.

Apply litter early in the morning when the typical airflow patterns will lift odors high into the air. Select a day when the wind is blowing away from neighbors. Do not apply litter on hot, still afternoons when there is little air movement and odors

are concentrated. Also avoid extremely dry, windy days when application is likely to generate a lot of dust. However, litter should not be applied during or soon after a rain, or when rain is expected, because moisture increases odor.

Apply the correct amount of litter to fields and pastures, based on a soil test and the nutrient needs of the plants. If too much litter is applied the odor will be stronger and water quality might be harmed. If possible, incorporate litter into the soil soon after spreading it. This reduces odor and the risk to water quality.

To transport litter to the field, load it carefully and cover it with a tarp to prevent spills. Clean up accidental spills immediately.

There should be a large enough storage/composting facility so that litter does not have to be applied to land too often. Having adequate storage allows the producer to wait until conditions are suitable for land application, and this greatly reduces odor and dust problems that might be a nuisance to neighbors.

Solving problems

Odor problems can be worse during the winter because of ammonia volatilization. Even though the ventilation rate in the poultry house is lower in winter and the volume of air exhausted is much smaller, the concentration of ammonia in the exhaust air may increase. Applying alum reduces the pH of the litter and ammonia volatilization.

It may be necessary to construct windbreaks (hay bales or wood or metal walls) to reduce odor and dust emissions. Windbreaks direct airflow upward and dilute the exhaust air.

Poultry producers must do all they can to reduce excessive odor and dust from their operations and be good neighbors.

Texas A&M AgriLife Extension Service

AgriLifeExtension.tamu.edu

More Extension publications can be found at *AgriLifeBookstore.org*

Educational programs of the Texas A&M AgriLife Extension Service are open to all people without regard to race, color, sex, disability, religion, age, or national origin.

The Texas A&M University System, U.S. Department of Agriculture, and the County Commissioners Courts of Texas Cooperating.