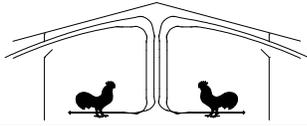




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Poultry Housing Tips

Minimizing Poultry House Odors

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Poultry houses, like all animal housing, can emit odors which some nearby neighbors may find offensive from time to time. Though it is basically impossible to eliminate all odors there are a number of things farm managers can do that will help to minimize odor emissions from their poultry houses. Planting trees, for instance, around a poultry house has been shown to reduce odor. In some cases, producers have found constructing a wall around exhaust fans to direct air upward has diminished odor. Though these methods of odor control may prove effective in some instances it is important to keep in mind that the first step in minimizing odor emissions is proper house/farm management.

The best way of minimizing odor emissions is through proper ventilation system management. The fact is the better a poultry house is ventilated, the drier the litter and the lower the odor emissions from a house will be. Furthermore, wet litter not only generates odor but is harmful to broiler performance. So, by properly ventilating a house and controlling litter moisture we will not only minimize odor emissions but improve broiler performance as well. The following are a list of things you can do to minimize odor emissions.

Summer:

- 1) Tunnel houses should have a minimum air speed of 500 ft/min. Though the primary purpose of wind speed is to produce significant bird cooling, the wind speed also can reduce odor related problems. A number of studies have shown that a properly operated tunnel house will have drier litter due to the high level of air movement created by the tunnel fans. Drier litter equals less odor. Furthermore, the high air speeds lead to a rapid exchange of the air in a poultry house which decreases the concentration of contaminants which leave the house. The lower the concentration of contaminants, the less likely neighbors will detect odors coming from a poultry farm.
- 2) Make sure that exhaust fans are properly maintained. Fan shutters and exterior screens should be cleaned weekly. Fan belts should be checked for signs of wear as well as motor pulleys. Poor exhaust fan performance not only reduces bird performance and increases operating costs, but also reduces air exchange rates and air speeds.

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Maintaining appropriate air exchange and air speed reduces odor problems.

- 3) Evaporative cooling systems should not be used until the house temperature exceeds 82°F. Evaporative cooling systems increase relative humidity as they cool the air. Since relative humidity of outside air tends to be over 80% when outside temperatures are below 80°F, turning on pads at lower air temperatures tends to saturate the incoming air. The saturated air cannot pull moisture from the litter and this can lead to a build-up of moisture in the litter. Over time floors will become wet increasing the likelihood of odor problems.
- 4) In houses with evaporative cooling pads interior fogging nozzles should be used sparingly. Most properly maintained pad systems will increase the relative humidity of the incoming air to between 75 and 85%. Turning on fogging nozzles when the relative humidity of the air in a house is already above 80% will not only do little cooling but can lead to litter wetting. Furthermore, the water droplets that do not evaporate can wet fan shutters leading to the rapid accumulation of damp dust on fan shutters thereby reducing the air moving capacity of the tunnel fans.
- 5) Keep birds evenly distributed throughout the house. Even bird distribution increases bird cooling by allowing more air to get between the birds. More air between the birds also keeps the litter drier. If we can't get adequate air movement over the litter we are more likely to have litter moisture problems. Furthermore, keeping the birds evenly spread out assures that an excessive number of birds won't be drinking from the drinkers near the tunnel curtain which can lead to litter wetting problems.
- 6) With older birds, make sure you run enough tunnel fans at night. Keeping enough tunnel fans running at night has shown to improve bird performance, and it also can help to minimize litter moisture problems. The relative humidity of outside air in most poultry growing areas tends to be between 80 and 100% at night. This means the air we are pulling through the house is nearly saturated with water and this makes it difficult to pull the moisture from the litter. Though the air at night is fairly wet we can still remove moisture from the house if we pull enough of it through the house. You can think of the air entering a house at night like a damp paper towel. You can still clean up a spill, it will just take more paper towels.

Spring/Fall/Winter:

- 1) Install a circulation fan system. Circulation fans have been proven not only to reduce heating costs by breaking up temperature stratification but also to improve litter conditions by constantly, gently moving air across the litter helping to remove excess moisture and dry it out.
- 2) Install a relative humidity meter/sensor. A relative humidity meter/sensor is the best tool to avoid litter moisture problems. The ideal relative humidity is around 50%. As the humidity increases above 70%, litter moisture problems are more likely to become a problem. Through monitoring house humidity levels, adjustments can be made to timer fan settings so that litter moisture problems can be kept in check.

Along with proper ventilation system management a houses' watering systems need to be carefully managed and maintained to help insure proper litter conditions and therefore keep odors to a minimum.

- 1) Repair leaks in the drinker system as quickly as possible.
- 2) Regular flushing of the water line has proven to extend drinker life and prevent leaking.
- 3) Drinker height and pressure should be managed according to the drinker manufacturer's guidelines. Drinker lines that are too high will result in birds moving to other lines in the house and the excess usage and birds in those areas can result in wet litter. Drinker lines that are too low will result in wet litter which results in odor and bird performance issues.
- 4) If the regulators are adjusted to provide too much water pressure the drinkers could drip excess on the floor when birds activate the pin while drinking.

Litter management to limit odor problems does not stop once the litter leaves the house. If the litter is moved to a litter storage shed, there are a number of things a producer can do to limit odor emissions:

- 1) Make sure that after cleaning out or caking out a house, that all spilled litter is cleaned up around the entry way. Litter spilled on the ground between the houses and the litter storage shed may not seem like much, but add some rain or a heavy dew and you can have a bloom of odor that contributes to an increase in overall odors and flies coming from the farm.
- 2) Ensure that rain and storm water do not enter the litter storage facility. Not only will the moisture create odors and encourage fly breeding, but storm water entry into the litter can increase the potential for excess heat from composting and spontaneous combustion. Inspect the litter storage facility site regularly for proper storm water drainage.

Mortality composting sheds can be another source of odor if not properly managed:

- 1) A three-to-one ratio of litter to carcasses is desired for proper composting with minimal odor. Make sure all carcasses are adequately covered with litter material as soon they are added to the composter. Cap all working compost with at least eight inches of litter material.
- 2) Limit compost height to five or six feet. Excessive height can lead to compaction of the material and a reduction in oxygen content of the pile. Oxygen is needed for the compost microorganisms to thrive and decompose the material. Without it, the material will emit foul odors.
- 3) As with litter storage sheds, ensure that rain and storm water do not enter the composter. Excessive moisture will cause the compost to rot instead of decompose, resulting in the foul odors associated with rotting materials.

Summary:

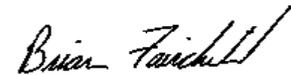
Every poultry farm is different and the causes of odor vary from farm to farm. The suggestions provided above do not imply that every one of these is recommended for every farm. Each odor issue needs to be evaluated individually and specific remedies applied for that particular farm.



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