

Prepare Poultry Houses for Cooler Weather



When summer begins to wind down, Mississippi poultry growers should prepare their houses for the cooler weather ahead. Gas prices continue to increase, and growers must get the most out of every dollar spent on fuel. This means houses and equipment must be at peak performance.

Routine maintenance is critical to keeping houses operating efficiently. Poultry houses and the equipment inside have to last for many years. This will only happen if the houses and equipment are taken care of with regular maintenance.

Without question, the top maintenance priority heading into colder weather is **house tightness**. Tightness is important throughout the year for proper environmental control, but it is critical during winter to minimize air leaks and reduce fuel use. Air leaks increase fuel consumption and have a detrimental effect on bird performance. Chicks easily become chilled from air leaks around footings, loose curtains, and end doors and may never recover. Performance may suffer throughout the flock because of poor environmental conditions.

Fuel costs may also be excessive. A crack as small as one-eighth of an inch along both sides of a 500-foot house is equivalent to more than a 10-square-foot hole in the wall. Make sure end doors and footings are sealed to prevent air leaks. The only air that enters your house should be the minimum ventilation air, and it should enter through the vent doors, not loose curtains, footings, or end doors.

Curtains must be tight with flaps in place and should properly seal at the bottom. Broken strings should be replaced to prevent curtains from sagging. It is impossible to have a tight seal at the top if curtain strings are broken. Tunnel curtains require special attention. They are usually insulated and, therefore, heavier than regular sidewall curtains. They may snag or hang up at either end of the cool cell when closing, preventing a proper seal at the corners, and the extra weight adds increased tension on strings, causing them to break more often.

If your houses have tunnel doors instead of tunnel curtains, they should seal snugly in front of the cool cells. If houses have a drop ceiling, there should be no holes in the vapor barrier that will allow warm air to escape into the

attic. This wastes fuel and allows condensation to form in the attic, reducing the effectiveness of loose fill insulation.

Vent doors should be checked regularly to verify they open and close properly and seal tightly when closed. Vent door strings often work loose from the steel rod that opens and closes the doors when the vent machine runs. Vent machines may run thousands of times on a winter batch of birds. These machines have gears and grease fittings under the cover that protect the gears from much of the dust and dirt in the chicken house environment. Don't forget the fittings need grease from time to time to work properly.

Regularly test house static pressure (difference in air pressure between inside and outside the house) to determine tightness. Static pressure can be tested by closing all vents, fan shutters, end doors, and so forth before turning on one tunnel fan and then reading the static pressure from the house controller. A curtain-sided house should be able to pull at least a 0.12 static pressure (0.20 and higher is common and often a minimum on solid sidewall houses); otherwise, proper minimum ventilation will be hard to achieve. A high static pressure is necessary to adequately mix and warm cold incoming air before it falls to the floor and chills birds. Improper mixing can affect temperature sensors, resulting in greater fuel usage, and it may be detrimental to bird health.

Temperature sensor placement is critical to bird comfort. Years ago, it seemed that almost everyone hung the one temperature sensor for the entire house maybe 50 feet from the brood end wall and about 3 feet off the floor (even though chickens were on the floor!). Today, in a single house, it is common to have multiple sensors that remain at approximately bird level, regardless of bird age. Often these sensors are attached to a water line cable and raised with the water line as the birds grow. This ensures the sensors always remain at approximately bird height throughout the flock.

Each sensor controls only the temperature in the designated "zone" where the sensor is located. This way, if one zone is cool and all other zones are satisfied, only heating units in the cool zone will run, thereby maintaining house environment as efficiently as possible. Having

sensors at bird level guarantees the proper temperature is maintained at bird level.

Sensors collect a thick coating of dust and dirt during summer when cool cells and tunnel fans are operating. These sensors need to be cleaned before winter.

Another priority is **sufficient gas pressure** to operate brooders and furnaces. Brooders and furnaces are designed to operate most efficiently at a specific pressure. Forced-air furnaces require a higher operating pressure than brooders. (When high efficiency infrared brooders are used, many integrators no longer require gas furnaces in new construction or remodeling projects.) A gas pressure problem is generally most noticeable at the farthest distance from the propane tank. If tanks are at the middle of the house, brooders/furnaces at either end will be the first to act up. When pressure is too low, heating units will only produce a weak, yellow flame (providing little heat) instead of the strong blue flame associated with normal operation.

Forced-air furnaces will show a problem before brooders because of their higher pressure demand, but brooders can have the same problem if pressure is low enough. While the problem is often associated with too little gas in the tanks, undersized piping inside and/or outside the chicken house also can cause it, especially if you have recently remodeled and added additional brooders/furnaces without changing piping.

Don't forget about gas leaks. Sometimes you can smell a leak because of the chemical added for just that purpose. However, you can also take a spray bottle of soapy water and spray on pipe joints, regulators, and other parts, and look for bubbles that will indicate leaks that perhaps you didn't smell.

Remember there are differences in operating pressure between propane and natural gas systems. Propane units often operate on 10 to 12 inches of water column while natural gas units operate on 6 to 8 inches. Your gas

provider should be able to test regulators on your farm to make sure you have adequate pressure settings.

Also, brooder orifices match the type of gas you are using (propane or natural). If you switch from propane to natural gas, you will have to change orifices in all your heating units. Check your orifices (both pilot, if so equipped, and burner) going into cooler weather to make sure they are not clogged with dust, dirt, spider webs, mud daubers, and so forth after a long, hot summer. The reason a brooder fails to ignite may not be a lack of gas, inadequate pressure, or a faulty igniter, but simply a clogged orifice. If you have direct spark brooders without pilot lights, keep a few spare igniters on hand just to be safe.

Fans are critical to any minimum ventilation program. Fans and shutters must be kept clean to operate properly. They should be washed between flocks to maintain optimum efficiency. Belts must be tight for fans to operate at their best. Belts that squeal and slip or have excessive play or wobble should be changed. Belt drive fans also have bearings that must be greased occasionally.

Stir fans may be an option to consider if you do not have them. Stir fans can help reduce temperature stratification by moving hot air off the ceiling. This can help increase moisture removal from the litter.

Fans not used for minimum ventilation (i.e., tunnel fans) should be covered during winter to prevent air leakage around shutters and cones. Covers must be able to blow off as needed to reduce heat buildup or in case of an emergency.

Don't wait until cold weather arrives to take action. Start early and you'll be prepared for the cooler weather ahead. Routine maintenance will result in energy savings and keep your operation running smoothly and efficiently. If you have questions or concerns, contact your service technician or your local MSU Extension office.

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