

# THE IMPORTANCE OF POULTRY HOUSE PRE-HEATING

Proper pre-heating of the poultry house environment is essential to maximizing flock performance.

Pre-heating raises the core temperature of the litter bed, which increases ammonia volatilization and water evaporation. Ideally, this occurs before litter amendment application and chick placement to ensure the best litter and house conditions through the brooding period.



## IMPACTS OF AN INSUFFICIENT PRE-HEAT

Impact	Result
High rate of ammonia and litter moisture purge after chick placement	Reduced longevity of litter amendment effectiveness, and increased poultry house humidity
Higher litter moisture content at chick placement	Litter caking earlier during the grow-out, which can decrease paw quality and increase the chances of bird health challenges
Low core litter temperature (core = all material more than two inches under surface)	Chick huddling at placement, birds slow to start eating and drinking
Cold water in drinker lines	Water may be too cold for chicks and cause huddling. <sup>1</sup> Water consumption has been shown to increase by 6% for every 1.8°F increase in air temperature between 68-89°F and by 5% for every 1.8°F increase in air temperature between 89-100°F.

<sup>1</sup> Brian Fairchild, Case Ritz, UGA Extension Poultry Drinking Water Primer

## PRE-HEATING CHECKLIST

1. Start managing litter immediately after removal of the previous flock
2. Decake to remove litter with highest moisture content. Litter tilling is generally not recommended as it incorporates the wettest litter into the litter bed.

**NOTE!** *Keep poultry house closed tight during this time to retain core litter temperature. Keeping houses open will require more gas during pre-heat and less ammonia and moisture will be purged during that time.*

3. If windrowing, a minimum of 14 days total downtime is recommended to ensure proper ammonia purge and moisture removal after leveling.
4. If condensation forms on the walls or ceilings, use stir fans and minimal negative ventilation to dry out house. This is best done during the daytime (between 10 am and 5 pm) when the outside air is at its driest. Reduce ventilation once condensation is gone. Always use full ventilation when working in the house during downtime.
5. Turn on brooder for a minimum of 24 hours prior to litter amendment application. The goal is to reach a core floor temperature of 88-92°F. If the litter is very cold (such as in winter) or very moist, a pre-heat of 48 hours prior to litter amendment application is highly recommended. The longer the litter is pre-heated, the more ammonia and moisture will be purged. Deep litter (>5 inches) will likely also require a longer pre-heat period to reach target temperature.
6. Just prior to PLT application, open inlets fully and turn on a minimum of 2 tunnel fans to remove accumulated ammonia. Once ammonia is sufficiently exhausted, turn off the fans and close the inlets to prevent ammonia gas that was exhausted from entering the house again.
7. Apply PLT to the top of the litter evenly 2 to 24 hours prior to chick placement at the following rates:



- a. Broiler litter 1 year old or less: 100 lbs./1,000 sq. ft. (49 kg/100 m<sup>2</sup>) of floor space
- b. Broiler litter older than 1 year: 100-150 lbs./1,000 sq. ft. (49-73 kg/100 m<sup>2</sup>) of floor space
- c. Windrowed litter or litter depth greater than 6 inches: 125-200 lbs./1,000 sq. ft. (73-91 kg/100 m<sup>2</sup>) of floor space

8. Following PLT application, ventilate the house to maintain a relative humidity between 50 and 70% while birds are present.



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