



*The University of Georgia*

**Cooperative Extension Service**

*College of Agricultural and Environmental Sciences / Athens, Georgia 30602-4356*

JANUARY 2009



## ***BROILER TIP . . .***

### **GETTING CHICKS OFF TO A GOOD START**



Flock efficiency is one of the main goals in broiler management. Achieving the heaviest weights with the least amount of feed requires dedicated practices at the farm to reduce bird stress. Minimizing bird stress is important to ensure that the nutrients and energy that are consumed in the form of feed results in maximum growth and development. Each day is important when determining overall bird feed efficiency. Broilers are going to be the most efficient during the first week when provided with optimal environmental conditions because the energy required for maintenance is relatively low compare to what it will be as the birds get bigger. Under normal conditions, chicks will increase their body weight by fourfold or

#### **PUTTING KNOWLEDGE TO WORK**

The University of Georgia and Ft. Valley State College, the U.S. Department of Agriculture and counties of the state cooperating.  
The Cooperative Extension service officers educational programs, assistance and materials to all people without regard to race, color, national origin, age, sex or disability  
An equal opportunity/affirmative action organization committed to a diverse work force..

better in the first week. Below are some management issues that should be addressed prior to and after bird placement to optimize chick performance in the first weeks of growout.

***Remove caked litter prior to birds being placed***

Ammonia is produced by microbial breakdown of fecal material in the litter. It is well documented in the literature that higher moisture levels result in higher ammonia production. The caked portion of the litter is very high in moisture and nitrogen and should be removed from the house to reduce ammonia generation and provide optimal air quality for chicks during the brooding period. Add litter treatments to reduce ammonia generation. Controlling ammonia with a litter treatment can save money on energy costs by reducing the amount of air exchange required to maintain adequate air quality.

***Apply bedding material at proper depth***

Bedding material is used to insulate the birds from the cooler floor and one of its most important functions is to absorb moisture. Broilers retain only about 20% of the water that they consume and the remainder is excreted onto the floor. Bedding material, whether it is fresh or reused, should be dry prior to bird arrival and placed at a minimum depth of three to four inches throughout the house. One issue faced in wider houses is maintaining consistent litter depth from wall to wall when the bedding material is applied. Areas that do not get adequate litter depth will be cooler, and will also tend to become wet more rapidly than areas that have adequate litter depth.

***Provide adequate feed and water***

It is important that chicks learn where food and water sources are located during the first week. Drinker lines should be flushed prior to bird arrival and lowered to the proper height for new chicks. Each drinker manufacturer has recommended guidelines for their products. Previous research has shown that when managed according to the manufacturer's guidelines there were no differences in bird performance (Cornelison et al., 2004).

Feed pans are usually flooded with feed and extra trays are placed at the feed line to increase feed surface area. Feed should be kept in trays throughout the first week, but care should be taken not to overfill the trays. Overfilling trays can result in feed wastage. Feed trays should be filled as needed throughout the day during the first week to provide chicks unlimited access to feed providing the opportunity to reach the full potential in first week performance.

***Preheat the house adequately***

All poultry companies have temperature guidelines. Care should be taken to ensure that the house is properly heated prior to bird arrival. It is important to know the difference between air temperature and floor temperature. Even though the air temperature may be 90 F this does not necessarily mean the floor temperature is 90 F. A noncontact infrared thermometer is a useful tool for determining if floor temperatures are correct (Czarick, 2007) and will represent a minimal investment. It is generally recommended that floor temperature be at least 90 F at chick placement.

***Provide proper air quality***

Air quality parameters that are of interest in poultry management include ammonia, carbon dioxide, carbon monoxide and relative humidity (RH). Ammonia is produced by microbial breakdown of bird fecal material in the bedding material. The microbial activity is related to

litter moisture and the amount of fecal material present. The wetter the litter, the greater the microbial activity and the greater the ammonia production. Maintaining RH between 50-70% will maintain litter moisture at 25-30% and a nominal amount of ammonia will be produced. However, when RH increases above 70%, litter moisture tends to rise and ammonia generation increases.

Carbon dioxide (CO<sub>2</sub>) is produced during brooding by the birds and as a byproduct of burning propane or natural gas for heat. Carbon monoxide (CO) is produced by the heating system. However, levels are minimal to zero when heating systems are properly maintained. Increased CO production is noted when brooders and heaters are not maintained properly. When ventilating to control moisture, both CO<sub>2</sub> and CO are reduced to levels that will not impact bird performance.

Minimum ventilation is crucial to maintaining good air and litter quality. Litter amendments are used to lower litter pH and minimize ammonia generation. Some producers do not run minimum ventilation fans for the first 24-72 hours when they apply ammonia litter amendments. This is a MISTAKE, while ammonia levels may not be an issue, moisture, CO<sub>2</sub> and CO are still being produced. By not ventilating during the first day or so, RH in the house will increase above 70% resulting in wet bedding material. This will shorten the life of the litter amendment, ultimately resulting in larger ammonia concentrations. Minimum ventilation fans should be turned on at the time the heating system is turned on to ensure good air quality at bird arrival and good litter conditions later in the growout (Czarick and Fairchild, 2002).

#### *Provide a maximum uniform light intensity*

In general not enough attention is given to proper light intensity. Modern broiler housing gives a tremendous amount of control over the birds' environment, including light. Poultry companies have their own lighting programs that should be followed. However, efforts should be made to evenly distribute light intensity at bird level. Uneven levels of light intensity will result in dark areas or shadows. Birds will tend to rest more in these areas and may not move around as needed to locate food and water sources. Producers should aim for a minimum of 2.5-3.0 footcandles at bird placement. Light intensity distribution can be improved by cleaning light bulbs, making sure the lights are working and by using light bulbs that provide the most lumens (Czarick and Fairchild, 2004).

Often the performance lost in the first week will not be regained in compensatory growth. Following these steps will help in making sure that the birds reach their full potential in the first week. Broiler management is all about efficiency and many of the small day to day activities of broiler operations can have significant impact on flock performance.

#### Additional Reading

Czarick, M. and B. D. Fairchild, 2002. Running timer fans prior to chick placement. Poultry Housing tips University of Georgia Cooperative Extension Service 14(3).

<http://www.engr.uga.edu/service/extension/ventilation/tips/2002/vol14n3.pdf>.

Czarick, M. and B. D. Fairchild, 2004. Lighting poultry houses with incandescent bulbs. Poultry Housing tips University of Georgia Cooperative Extension Service 16(2).

<http://www.engr.uga.edu/service/extension/ventilation/tips/2004/vol16n2.pdf>.

Czarick, M., 2007. Using non-contact thermometers. Poultry Housing tips University of Georgia Cooperative Extension Service 19(4)

<http://www.engr.uga.edu/service/extension/ventilation/tips/2007/vol19n4.pdf>.

Cornelison, J.M., A. G. Hancock, A. G. Williams, L. B. Davis, N. L. Allen and S. E. Watkins, 2005. Evaluation of nipple drinkers and the Lott system for determining appropriate water flow for broilers. Avian Advice University of Arkansas Division of Agriculture 7(3): 1-4.

[http://www.poultryscience.uark.edu/pdfs/avianadvice\\_fa05.pdf](http://www.poultryscience.uark.edu/pdfs/avianadvice_fa05.pdf).



Brian Fairchild

Extension Poultry Scientist



Mike Czarick

Bio. AG Eng.

Extension County Coordinator/Agent

**\*\*Consult with your poultry company representative before making management changes.\*\***

**“Your local County Extension Agent is a source of more information on this subject”**