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Poultry Housing Tips

Minimizing Foot Pad Dermatitis & Maintaining Good Paw Quality

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Paw sales are as lucrative as ever for the broiler industry. Data from the USDA indicates that the US broiler industry exported $463 million in paws in 2010. This is impressive, considering that about 20 years ago paws were part of offal and sent to rendering. Now paw sales bring profits that no one back then could have imagined. Not only is paw quality economically important to the poultry industry, but it is a point of inspection in animal welfare audits providing an indicator of how well the broiler house environment has been maintained and overall condition of litter quality. While there are several issues during rearing and processing that can cause paws to be downgraded, the primary reason is the development of foot pad dermatitis (FPD). This occurs when lesions form on the bottom surface of the foot pad. Many times birds will walk and act normally even though they may have lesions, which make it a surprise to the grower and the company when paw recovery is less than expected due to downgrades related to FPD. Controlling FPD is important not only because the result will be better house conditions, but higher yields of grade A paws that will result in increased revenue.

What Causes Foot Pad Dermatitis?

Litter moisture content is a primary factor in the development of FPD. Birds stand and rest on bedding material. The purpose of the bedding material is to provide insulation from the cold earth floor and more importantly to absorb moisture. As the moisture content of the bedding material increases, the birds will stand on it, rest on it and eventually the keratin layers (the outer layers of the skin) will begin to soften. As the birds walk on the floor, the friction between their feet and the floor will erode the keratin layers and eventually result in the formation of a FPD lesion. The farms that have the best paw recovery are the ones that also do the best job in controlling moisture.

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How to Control Moisture in Broiler Facilities

There are several things that can be done to control moisture in broiler houses. Sources of moisture in a broiler house include the heating system, drinker system, and the birds themselves. Below are several aspects of broiler management that can influence the incidence and severity of FPD.

Bedding material – The materials used are usually driven by availability, cost, and suitability to meet the moisture control needs of poultry facilities. Kiln dried pine shavings have traditionally been the preferred material for bedding materials in poultry houses. Peanut hulls, rice hulls, and sawdust are other materials that are popular and serve as acceptable materials for moisture control in poultry houses. Particle size of the material is important as well. Materials with smaller particle sizes absorb more moisture and subsequently release that moisture more readily than larger particle sizes. Larger particle sizes tend to cake over more quickly as well. Moisture content of the fresh material that is spread in the poultry house is important as well. Ideally, the moisture content of a fresh bedding material being placed in a poultry house will be less than 20%. The higher the moisture content of the bedding material at bird placement, the less moisture it will hold and it will be more difficult to keep chicks warm during the brooding period. Litter depth is important; a minimum of three inches is required. Less litter depth will result in cooler floors due to poor insulation and a more rapid saturation of the litter, resulting in caking. Built-up used litter, accompanied with proper ventilation has resulted in good paw quality for many producers. Usually this is a result of litter depth as houses with used litter tend to have litter depths ranging between 4 and 8 inches. So it is not necessarily the litter material in this case that is resulting in good litter quality, but a combination of particle size and litter depth. (*Poultry Housing Tips:* The Relationship Between Litter Moisture and Foot Pad Dermatitis; Improved Growth Rates can Make it Difficult to Control Litter Moisture)

Minimum ventilation – The primary objective of minimum ventilation is to control moisture. Houses should be ventilated from the moment the heating system is turned on to remove as much moisture as possible. Two 36" fans operating for 30 seconds out of five minutes will typically prove sufficient for the first few days and then the ventilation rate should be increased based on house relative humidity. (*Poultry Housing Tips:* Minimum Ventilation Rates; Controlling Litter Moisture)

Monitor relative humidity – Relative humidity (Rh) should be monitored daily. The objective is to maintain the Rh inside the house between 50 and 70%. If the Rh drops below 50% the house will become too dry and the dust levels will increase, where if it rises above 70%, the floor will begin to "slick over" and ammonia and caking will increase. Checking the Rh early in the morning and making adjustments to ventilation rates will help to maintain good litter quality. (*Poultry Housing Tips:* Benefits of Controlling Relative Humidity; Adjusting Minimum Ventilation Using Relative Humidity Meters)

Bird density – Birds should be evenly distributed throughout the length of the house. If a house ends up with 60% of the birds in the front, the litter in the front of the house will become saturated more quickly than that in the rear of the house. Splitting the birds at placement by putting a divider in the brood area will help ensure that birds are evenly dispersed between the front and back. Using multiple water meters to monitor the water consumption in the front and rear will also help to ensure that birds are evenly distributed. (*Poultry Housing Tips:* Migration Fences Should be Used During Cold Weather; Using Water Consumption as a Management Tool)

Drinker management – Drinkers should be managed according to the manufacturer's guidelines. Matching the proper drinker height and water pressure to these guidelines will ensure sufficient water availability for bird consumption and minimize leakage to the floor. Drinkers should be flushed and cleaned routinely, at least once between flocks and after any administration of material through the drinker system. (*Poultry Housing Tips:* Water System Check-Up)

Brian Fairchild
Extension Poultry Scientist
(706) 542-9133
brianf@uga.edu
www.poultryventilation.com

Michael Czarick
Extension Engineer
(706) 542-9041
mczarick@uga.edu