



The University of Georgia

Cooperative Extension Service

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BROILER TIP . . .

WHY USE LITTER TREATMENTS?

Poultry litter is a mixture of manure, bedding material and feathers. It is a valuable source of nutrients that contains high levels of minerals including nitrogen, phosphorus, potassium and calcium and is also a good source of crude protein. One of the major problems associated with poultry litter is the volatilization or loss of nitrogen on the form of ammonia (NH_3) from the litter.

Ammonia volatilization from poultry litter in poultry houses results in high levels of NH_3 in the atmosphere which is detrimental to the health of the birds. High concentrations of NH_3 in the houses above the critical atmospheric levels allowable ($2\mu\text{LL}^{-1}$) for poultry causes a reduction in growth rate, reduced egg production, poor feed efficiency, damage to the respiratory system, immuno-suppression and retinal damage. Ammonia volatilization also results in malodorous emissions and loss of poultry litter value as a fertilizer due to nitrogen loss. Because of these negative effects of NH_3 volatilization, good litter management practices are key to a successful operation.

Applying a litter treatment is a good way to reduce NH_3 volatilization from the litter. Because of the abundance of urea in the litter an ideal environment is available for ammonia producing micro-organisms. An understanding of the conditions that influence the activity of these organisms could help us develop litter management strategies to prevent or reduce the amount of nitrogen that is lost from the litter in houses. With this in mind litter treatments have been developed to reduce NH_3 volatilization. There are several variables that impact the type of litter treatment product that a grower might select. The amount of moisture in the litter, ventilation management, and disease challenge can all impact the efficacy of the product that is selected.

Among the most commonly used and tested litter treatments are Aluminum Sulphate (alum), Sodium Bisulphate, and Sulfuric acid. Generally, the mode of action of litter treatments is to reduce the pH of the litter thereby inhibiting the actions of NH_3 producing microbes. Results from experiments in the field have shown that broilers grown in houses treated with these products were heavier, had better feed conversion and lower mortality than birds grown in untreated houses. Energy use during the winter was lower in treated houses; due to lower ventilation requirements.

PUTTING KNOWLEDGE TO WORK

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Another positive result observed with these acidifying litter treatments is reduction in pathogens such as Campylobacter and Salmonella in the litter and on the bird carcasses.

In conclusion litter treatments can enhance the composition of the litter, and provide a better in-house environment for the birds and the workers. Litter treatments have no negative effect on litter decomposition in the soil.

Summary

Litter treatments can increase agricultural productivity.

1. NH_3 volatilization results in a reduction in performance, production and health of birds.
2. Application of litter treatments reduces nitrogen loss from the litter resulting in a reduction of NH_3 in the atmosphere and improved performance in the birds.



Claudia Dunkley

Extension Poultry Scientist

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”