Alternatives to Alum for Reducing Ammonia Volatilization from Poultry Litter. (S06-allen163316-Poster)

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Abstract:

Ammonia (NH3) volatilization in poultry houses is detrimental to laborers, birds and the external environment. Scientists have experimented with various additives to poultry litter to reduce ammonia volatilization, especially alum, which is expensive, and can have deleterious effects on aquatic environments. This study was conducted to compare some alternative chemical amendments on volatilization of NH3 from poultry litter with the traditional alum treatment. Poultry litter samples were amended with alum, flue gas desulfurization fly ash (FGD) and recycled wallboard gypsum (WBG) at rates of 100, 200,400 and 600 gm/kg dry litter. Volatilized NH3 was trapped in a boric acid solution by passing NH3-free air in a chamber containing amended litter, and then titrated with 0.01N HCl to determine NH3 content. Results indicate that alum at 200 g/kg dry litter dramatically reduced NH3 volatilization by 86% throughout the experiment. FGD at 400g/kg dry litter significantly reduced NH3 volatilization by 78% and 57% after 8 and 21 days over the control, respectively. Other treatments also reduced NH3 volatilization to a lesser extent, and the rate of reduction varied among treatments.

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