The addition of chemical amendments to land applied poultry litter is paramount to the maintenance of acceptable phosphorus (P) and nitrogen (N) levels in stormwater runoff from pasture. Chitin is the chief component of shrimp shells, and together with its more processed form chitosan, may show promising P, N, and metal ion chelation characteristics by virtue of its chemical structure and unique charge distribution. The objective of this study was to measure the effects of aluminum sulfate (alum, AB3SO4·3H2O) on aqueous solubility of P and ammonia (NH3) release against those of chitin and three varieties of chitosan in poultry litter. The experiments revealed that while chitin has little to no effect on water extractable P (WEP), all three varieties of chitosan show decreases in WEP not significantly different from those of alum. While alum significantly decreased NH3 volatilization from litter samples, neither chitin nor chitosan significantly affected released NH3.

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