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Poultry Litter as a Fertilizer Source

Kansas isn't necessarily known for its commercial poultry production, but states around us are. The litter produced by those operations can be significant, with some regularly making its way into Northeast Kansas. If you've ever considered poultry litter as a fertilizer source, there are a few things to keep in mind as you make your decision.

First, applications are typically made based on Phosphorous (P) levels because of the high P content of most products. Doing so can help reduce surface water contamination potential.

Second, laboratory analysis is key due to significant variations in moisture and nutrient concentrations. A Southeast Kansas study of litter products found an 'average' analysis to be around 56-53-46 (N-P-K), with a fair bit of variation around that average based on source. Layer litter tends to be high in moisture, but lower in nutrient content, with study averages around 35-40-20. Broiler and turkey litter are lower moisture, with analyses approaching 60-60-55. Not all products are created equal and knowing the nutrient content via laboratory analysis (for nutrient levels *and* the chemical forms of the nutrients) is critical to ensure adequate estimation of nutrient availability and making application rate decisions.

Third, analysis isn't the whole story. Most studies suggest 45-55 percent of the total N will be available in the year of application. Differences in product, handling, and application all affect that number, however. Product incorporated on row crop ground will result in higher availability than the same product surface applied to cool season grasses. Phosphorous availability is typically considered relatively high, with credit for P in the litter often adjusted based on the P soil test levels of the land to which it is applied. Potassium (K) availability should be near 100 percent. Secondary and micronutrients are provided with litter applications as well.

There can be challenges with using poultry litter. In addition to the above considerations, variability can be increased with improperly calibrated application equipment and improper storage. Careful management of the product from source to the field is important to maintain the nutrient value of the product while preventing it from being an environmental nuisance. For additional information on calculating nutrient availability, see Estimating Manure Nutrient Availability from our KSU Bookstore at: <https://bookstore.ksre.ksu.edu/pubs/MF2562.pdf> . For more information, the studies done in SEK, drop me a line. The research encompassed 213 samples and tells an interesting story about the variability of litter products.