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POULTRY LITTER AS FERTILIZER FOR SOYBEANS FACT SHEET

This is one in a series of fact sheets from the Mississippi Soybean Promotion Board and the soybean checkoff. Each sheet presents a brief overview of a topic important to Mississippi soybean production. More information on each topic can be accessed through the link at the bottom of the sheet. To see other fact sheets, click here.

Poultry litter (PL) is a legitimate alternative to phosphorus (P) and potassium (K) commercial fertilizers for soybean production on soils that require P and K fertilization according to soil test results. Using PL in lieu of commercial fertilizer may result in increased soybean yields.

Over the long term, using PL vs. commercial fertilizer will likely result in a higher cation exchange capacity in affected soils and also more total carbon and organic matter in those soils.

Estimated costs of PL applied to soil will vary according to the hauling distance from the source to the field of application. Estimated costs based on $10/ton removal of litter from the poultry house, $10/ton loading onto truck, $0.17/mile hauling to producer field (100 or more miles), and spreading 2 tons/acre of litter on the producer field are $90/acre for a site 100 miles from the litter source and $124/acre for a site that is 200 miles from the litter source.

In Mississippi, the hauling cost will be a major cost factor since most of the poultry houses are located in the southeastern region of the state, an area with few soybean acres.

Individual lots of PL will vary in their N-P-K contents based on age of litter, whether fresh or stockpiled, and type of poultry that produced the litter. Thus, it is imperative that vendors furnish a nutrient analysis of their product so the recipient will know the amount of nutrients in the litter that is being purchased as fertilizer, and to determine if the value of the litter as fertilizer exceeds its cost or the cost of an equivalent commercial fertilizer.

An estimate of the amount of nutrients in PL will be around 60 lb N, 30 lb P, and 45 lb K per ton, but again these amounts will vary by litter lot, age of litter, and its storage environment if not fresh.

PL will contain amounts of calcium, magnesium, sodium, and sulfur, plus small amounts of micronutrients. Thus, some value can be attributed to these elements.

In the Midsouth, application of PL in the fall can result in up to 15% loss of fertilizer potency. Thus, spring, preferably just before planting, is the ideal time to apply PL so that its maximum nutrient-supplying potential is realized.

The maximum value of PL as fertilizer occurs at the time it is removed from a poultry house. However, proper storing of litter will ensure maintenance of fertilizer potency and prevent water contamination until it is delivered to the application site.

Important points to remember when considering PL as fertilizer are 1) is the litter fresh or from a stockpiled source, 2) what is the tested nutrient content of the litter, 3) will the nutrient content of the litter be more or less than that needed to meet the fertilizer requirements of the crop being grown on the site to which it will be applied, and 4) will cost associated with the litter and its application be less than or near the cost of an equivalent commercial fertilizer.

Results from research conducted on a Blackland Prairie soil in NE Miss. showed that 1) using PL as a fertilizer will improve soil health attributes, 2) PL should be rotated with synthetic commercial fertilizers to ensure a stable soil nutrient status, and 3) PL application strategy should be managed to ensure that major nutrients such as P and K are at the proper level in the soil to nourish the crop being grown.

Click here for a detailed discussion of this topic.

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