Enhancing Field Litter Decomposition: The Impact of Soil Amendments

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Decomposition plays a crucial role in maintaining healthy soil ecosystems. The breakdown of organic matter (field and harvest litter) by decomposers (microorganisms) releases essential nutrients back into the soil, improving fertility and plant growth. Faster decomposition rates can also lead to improved nutrient cycling, reduced reliance on synthetic fertilizers, and increased carbon sequestration in the soil. Soil additives have been successfully used to enhance decomposition rates within the soil itself. The objective of my research is to show that adding soil additives will increase decomposition underneath the soil, but they will also help to decompose field litter on the surface of the soil. My hypothesis is two-fold. My first hypothesis is that soil additives that increase decomposition within the soil will also directly increase the decomposition of field and harvest litter on the surface due to similar mechanisms. My second hypothesis is that the effectiveness of soil additives in increasing surface litter decomposition will depend on the type of additive and the composition of the litter itself. I prepared soil buckets this year with soil, t-shirts to validate research from previous years, more soil, screen material, and finally field litter from both soybean and corn fields. Soil additives of mycorrhizae, BioAg, and manure were used. I waited 60-days and then pulled my t-shirt samples and my field litter samples and analyzed my data. Although there were a few concerns with the weight of the field litter, the data supported my hypothesis.

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