An Analysis of Natural Soil Amendments Applied to Ryegrass and Switchgrass to Reduce the Effects of Road Salt

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When road salt is applied in the winter, it washes into the ditches and the watershed. Salt can be harmful to plants and organisms. Our goal was to apply natural soil amendments to switchgrass and ryegrass. We chose these plants to simulate Minnesota road ditches. The two types of biochar we used were Naked Char and Vital Blend. There are claims that biochar and coffee grounds can lessen the effects of salt. After researching, our hypothesis is that Vital Blend will be the best choice for reducing the effects of road salt on the soil. We measured different ratios of each product with potting soil. We used 25%, 50%, and 75% ratios and had three trials. We planted rye grass and switchgrass seeds. The samples were placed in a greenhouse with controlled temperature, light, and water. The number of plants that grew were recorded each day. The salt was added in equal increments and the soil was tested for salt levels and pH before and after the addition of the road salt using a multimeter and testing their resistance. The salinity decreased with the application of 50% Naked Char. 50% Vital Blend decreased for both seeds. Switchgrass in coffee grounds decreased at 50%. In general, the soil that contained 50% and 75% soil amendments germinated more seeds. Our hypothesis was somewhat supported in that all of the amendments improved the salinity of the soil in some aspects. This is promising and should be tested further in a natural setting.