The Effect of Biochar on Phosphorus Leaching in Chicken Manure

Vaughan, Breanna (School: Central City High School)

The purpose of this experiment was to determine if adding biochar to chicken manure would affect phosphorus losses. This is important due to the recent boom of chicken barns in the Nebraska area. It was hypothesized that higher biochar levels would decrease the losses from the manure because it has been shown to lower losses in cow manure. Four 200g samples of barred rock chicken manure were split into three groups. One of these groups was the control group with 0%, and the other three each received a different level of biochar; 5%, 10%, 15%. Half of each sample was then sent for phosphorus testing. The remaining sample was placed on cheesecloth suspended over containers. Each sample was watered with 30mL of water every other day for twelve days. These samples were then also sent for testing. The entire procedure was replicated to verify the results. The data did not show a significant difference in the amount of phosphorus that was retained in the manure, both with an Anova test P value of 0.07 (a=0.05), so the alternative hypothesis was unable to be supported. A possible explanation for this is the small number of samples. An extension of this study that included more trials and manure from various types of chickens would give more insight into the effect of biochar on the leaching of phosphorus from chicken manure.

Awards Won: