

**Soil and Water Sciences Department
Graduate Student Research Seminar**

Speaker: **Andressa Freitas**
 Ph.D. Dissertation Degree Candidate

Advisors: Vimala Nair, Ph.D.

Title: **Phosphorus Release from Biochar of Various
Feedstocks: Implications for Land Management**

Date: Monday, April 22, 2019

Time: 3:00 pm – 4:00 pm

Location: McCarty Hall A, Room G186

Biochar is obtained by heating biomass in complete absence or low concentrations of oxygen, through a pyrolysis process. The use of biochar as soil amendment has increased immensely in recent years and a variety of wastes and byproducts have been converted to biochar to strategically minimize the use of fertilizers and to improve chemical and physical properties of soils. The great diversity of feedstocks may confer different abilities in sorption and desorption of nutrients e.g., phosphorus (P), therefore either contributing to leaching control or facilitating the plant uptake by acting as nutrient source. Many aspects involving biochars' properties have been elucidated but little information is available on their P sorption/desorption characteristics when land-applied. Our objectives were to evaluate: i) the characteristics of various biochar feedstocks that influence biochar properties such as in P sorption/desorption when mixed with soils that have different P retention capacities and ii) the potential of adding poultry litter biochar as a plant nutrient source on crop yield in a field experiment when the same amount of phosphorus as inorganic P fertilizer is added. Results show a significant variability in the mineralogy and magnitude of the elemental composition among the selected biochar feedstocks, and conversion of biosolids into biochar significantly reduced P release in the final product. Poultry litter biochar provided adequate P to maintain similar crop yield compared to inorganic P fertilizer and can safely substitute the commercial fertilizer.

This seminar can be viewed via live or watched later via this link: [Andressa Freitas](#). Viewers of the live stream may now ask questions by clicking on the message icon at the bottom. Questions will be read at the end during the question and answer portion. In addition, all seminars are archived for viewing on our [SWSD Seminar Page](#).