The seminar discussed the use of biochar to enhance soil quality and crop production in sandy soils. Most soils in Florida are sandy and have a low holding capacity for nutrients and moisture in the surface soil layer (0-15 cm). Biochar amendment generally improves soil physicochemical properties including bulk density, porosity, CEC, and pH. However, the results reported in literature are inconsistent regarding biochar effects on nutrient uptake and crop production. We hypothesized that biochar is useful for improving soil fertility and crop production, but its effectiveness may vary with biochar type, application rate, and soil type. In this study, typical agricultural soils with contrasting properties (Alfisols and Spodosols) were collected from the surface layer (0-15 cm) and amended with each of the four biochars derived from different wood feedstocks (eucalyptus-B1, birch-B2, oak-B3, and pine-B4) at two application rates (1 and 2%). Soil culture experiments were conducted in greenhouse using field corn (Zea mays) and mustard (Brassica juncea) as an indicator crop to evaluate the effectiveness of the biochars for improving nutrient uptake, crop production, and soil fertility. Results from this study indicated that plant growth and dry biomass yield significantly improved with biochar amendment, especially B3 for mustard and B1 and B3 for corn. Both corn and mustard crops were more responsive to biochar amendment in the Spodosol than the Alfisol. Application rates at both 1% and 2% are adequate, but 1% may be preferred in terms of economic benefits, since 2% rate did not always show better results. The beneficial effects of biochar amendment on plant growth and crop yield are related to increased available nutrients in the soils.

This seminar can be viewed live via this link: Shiji Wang. Since this is a Zoom meeting, anyone viewing remotely will be able to ask questions at the end of the seminar. In addition, all seminars are archived for viewing on our SWSD Seminar Page.