# EFFECTS OF BIOCHAR ON FERTILIZER LEACHING

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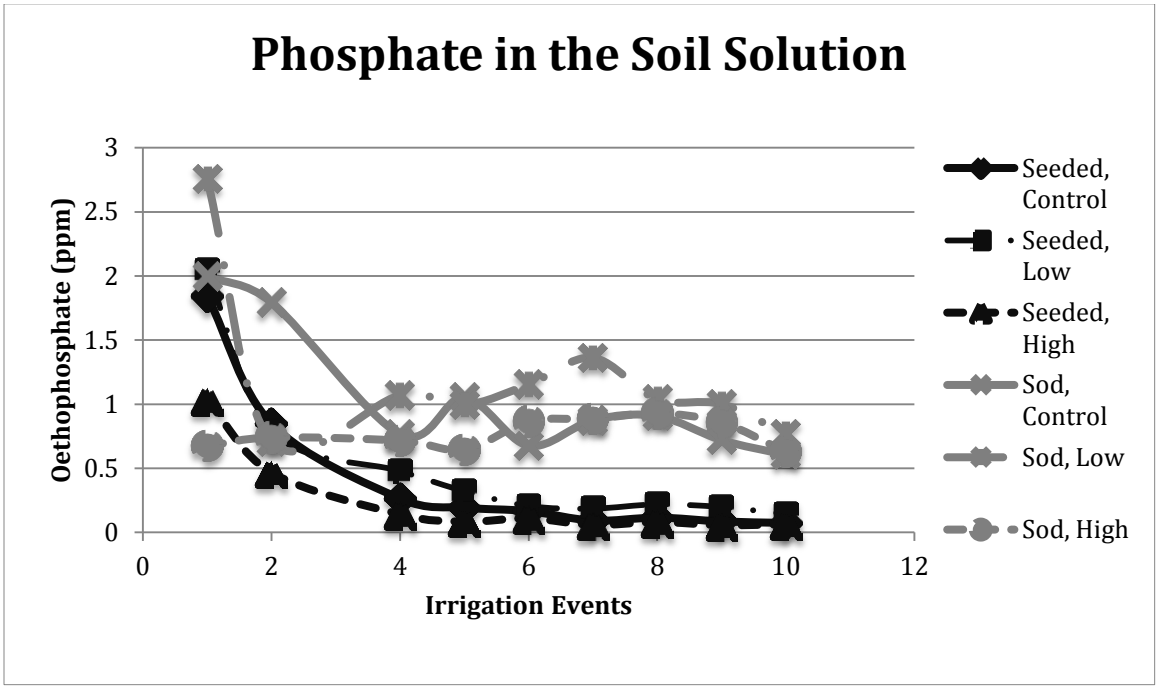
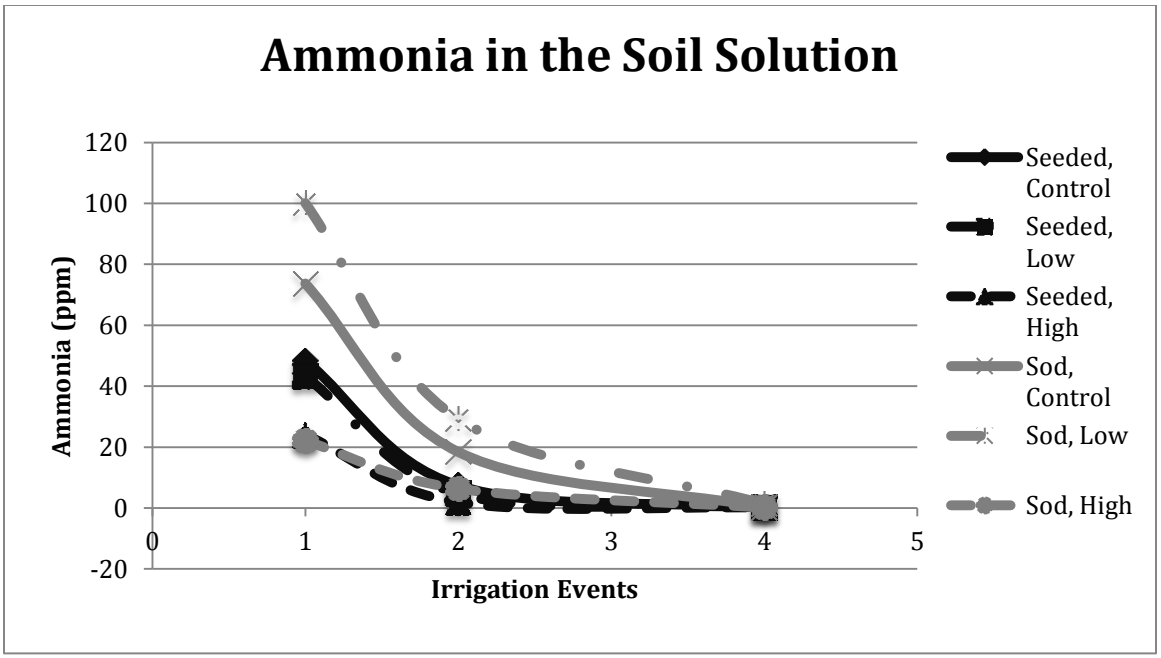
**Objectives:** To evaluate biochar's ability to reduce nutrient leaching from lawn grass.

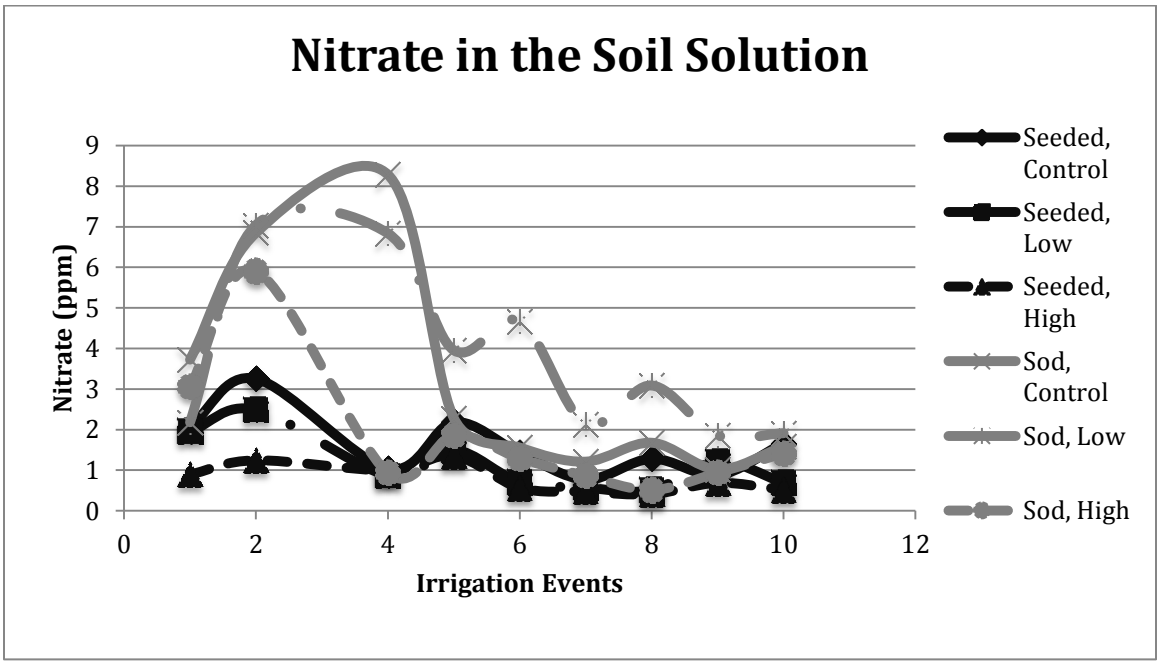
**Methods:** Biochar (Blue Sky Biochar) and tall fescue seed (450 lb/acre) were sown at roughly the same time, both at UC Riverside and at the West Coast Turf farm in Escondido. Later, the sod from West Coast Turf was transplanted into plots along side the seeded plots at UCR Turfgrass Research Facility. Suction lysimeters were installed in each plot. The plots were fertilized with 2 lb N / 1000 $ft^2$ using a 15-5-8 fertilizer (BEST Microgreen). Following fertilization, soil solution samples were taken from the lysimeters (Irrometer) after irrigation for 7 weeks. The soil solution was analyzed for nitrate, ammonia and ortho-phosphate concentrations.

**Treatments:** 3 rates of biochar were applied to each the transplanted grass and the seeded grass: the control rate of 0 tons/acre, the low rate of 2.8 tons/acre, and the high rate of 14 tons/acre.

**Results:**






**Discussion:** With phosphate and the ammonia, there is a sharp decrease during the first few irrigation events as the nutrient is taken up by the grass or washed away. The nitrate instead increases as the ammonia nitrifies into nitrate and then decreases as it too is washed away or absorbed. The sod treatments almost always had higher values in all three tested ions, likely because transplanting severs roots of the plants. In most cases the high rate of biochar resulted in lower

concentrations of each ion in the soil solution than the corresponding control and low treatments.