

THE EFFECTS OF MYCORRHIZAL INOCULANT AND MICRONUTRIENT SEED TREATMENT ON EARLY ESTABLISHMENT OF A TALLGRASS PRAIRIE RECONSTRUCTION

**CHRISTOPHER BARBER*, TALLGRASS PRAIRIE CENTER, UNIVERSITY OF NORTHERN IOWA
2412 W 27TH ST, CEDAR FALLS, IA 50613**

**DARYL SMITH, TALLGRASS PRAIRIE CENTER, UNIVERSITY OF NORTHERN IOWA 2412 W 27TH
ST, CEDAR FALLS, IA 50613**

**DAVE WILLIAMS, TALLGRASS PRAIRIE CENTER, UNIVERSITY OF NORTHERN IOWA 2412 W 27TH
ST, CEDAR FALLS, IA 50613**

Abstract: This experiment examines the effects of mycorrhizal inoculant and a micronutrient powdered seed coating on native vegetation establishment in a tallgrass prairie reconstruction. This experiment includes four seed treatments (control, mycorrhizal, micronutrient, and mycorrhizal plus micronutrient) replicated a total of six times using a split block design. Each plot was seeded separately in May 2009 using a seed mixture of 36 native species (8 grasses and 28 forbs). Preliminary sampling in August 2009 showed that treating seeds with mycorrhizae or micronutrients significantly ($p=0.004$ and $p=0.047$) increased seedling emergence by 35% and 25% respectively over non-treated seed controls. The greatest increases in seedling emergence occurred in the warm-season grasses. Coating seed with mycorrhizae also significantly ($p=0.01$) increased plant growth and development. Partridge pea (*Chamaechrista fasciculata*) had 39% more flowering plants in mycorrhizae plots over non-treated seed controls. Treating seeds with both mycorrhizae and micronutrients did not appear to amplify the effects on seedling emergence, growth or development over plots treated with only mycorrhizae or only micronutrients. Preliminary results suggest that seed treated with only mycorrhizae or only micronutrients improved native plant establishment. However, maximum native plant establishment was achieved from treating seed with only mycorrhizae. A second sampling will be done in June 2010 and these results will be included in this presentation.