The Combined Effects of Ash and Mycorrhiza on *Triticum aestivum*

Will Kozicki, Ellis Mauser, Andrew Rodriguez

**Introduction**
- Phosphorus (P) is one of the most limiting factors to plant growth.
- Ash provides additional P and micronutrients *but* may effect soil pH and P availability.
- Mycorrhizae are known for their ability to aid plants in P uptake.
- We hypothesize that ash and mycorrhizae will increase growth of wheat as a result of increase P availability and absorption.

**Methods**
- Mycorrhizae inoculum added at time of planting under each seed in the soil.
- 20 cc of ash was added to the surface of the soil after seeds were sown.
- pH was measured using a direct soil sample and color indicating pH strips—this was done at the beginning and end of the experiment.

**Results**
- A significant difference (p=0.02113) in height was observed in Week 1 between the control and A-NF.
- A significant interaction (p=0.002247) on root length was found between the presence of ash and mycorrhizal fungi.
- Initial pH testing of ash incorporated plots showed the soil to be slightly alkaline (pH=8) while non ash amended plots were pH neutral; ending pH of all plots were neutral (pH=7).

**Discussion**
- The significant interaction between plant height in response to ash and mycorrhizae amended soils supports our hypothesis that the combined treatments would have a positive effect on primary growth in wheat.
- Causation of increase root development observed in the control could potentially be explained by the physiochemical changes in the soil brought about by the addition of ash.

**Acknowledgements**
We wish to thank Dr. Andrew Doust, Dylan Franke, and Ky Shen for their help and direction for this project. We also want to thank Howard Hughes Medical Institute for the funding that allowed our ideas to come to life.

**References**