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

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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.

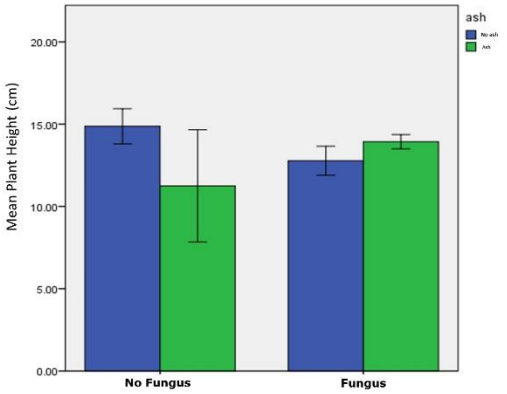

Figure 1: Plant height after Week 1.

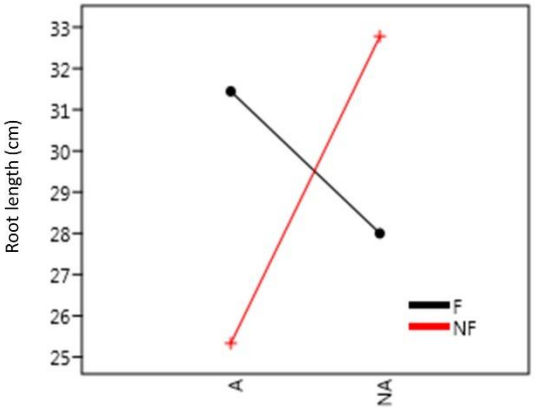

Figure 2: Interaction between ash and myccorhizal presence on root length.

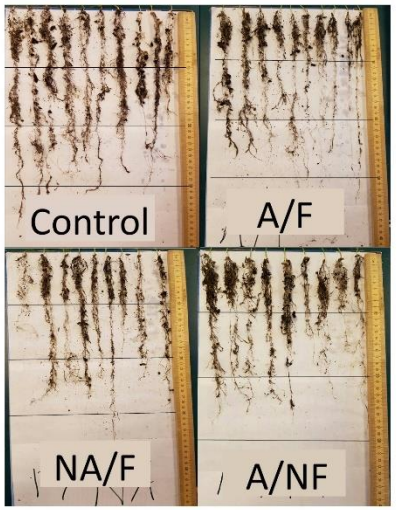

Image 1: Washed roots after harvest.

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.

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References

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