

## Introduction

- Mycorrhizal Fungi could be the key element in the restoration of native prairie plants. Mycorrhizae form a significant symbiont relationship with plants, by attaching to the root hairs and increasing their range. This mechanism allows the plant to increase nutrient, mineral, and water uptake. (Tallaksen 1997).
- In a study, the effects of Mycorrhizal inoculum on certain plants lead to an increase in nutrient uptake, which resulted in greater biomass, stem length, and chlorophyll content. (Gomez-Bellot, Ortuno, Nortés, Banon, and Sanchez-Blanco 2015).
- We inoculated *Desmodium Canadense* and *Salvia Azurea* with commercial (Earth Juice-Rooter's Mycorrhiza) and wild-type Mycorrhizal fungi. Earth Juice claims that "this blend of Mycorrhizae will increase a wide variety of different plants, growth and vigor." (Earth Juice 2013).
- It is still unknown if commercial Mycorrhizae deliver the same benefits as wild-type Mycorrhizae. If commercial Mycorrhizae provide the same symbiont advantages, then this type of inoculation could further aid in the restoration of native prairie plants.
- In order to determine the efficacy of commercially sold Mycorrhizae we inoculated *Desmodium Canadense* and *Salvia Azurea* with commercial and wild type Mycorrhizae in both sterilized and non-sterilized soil.

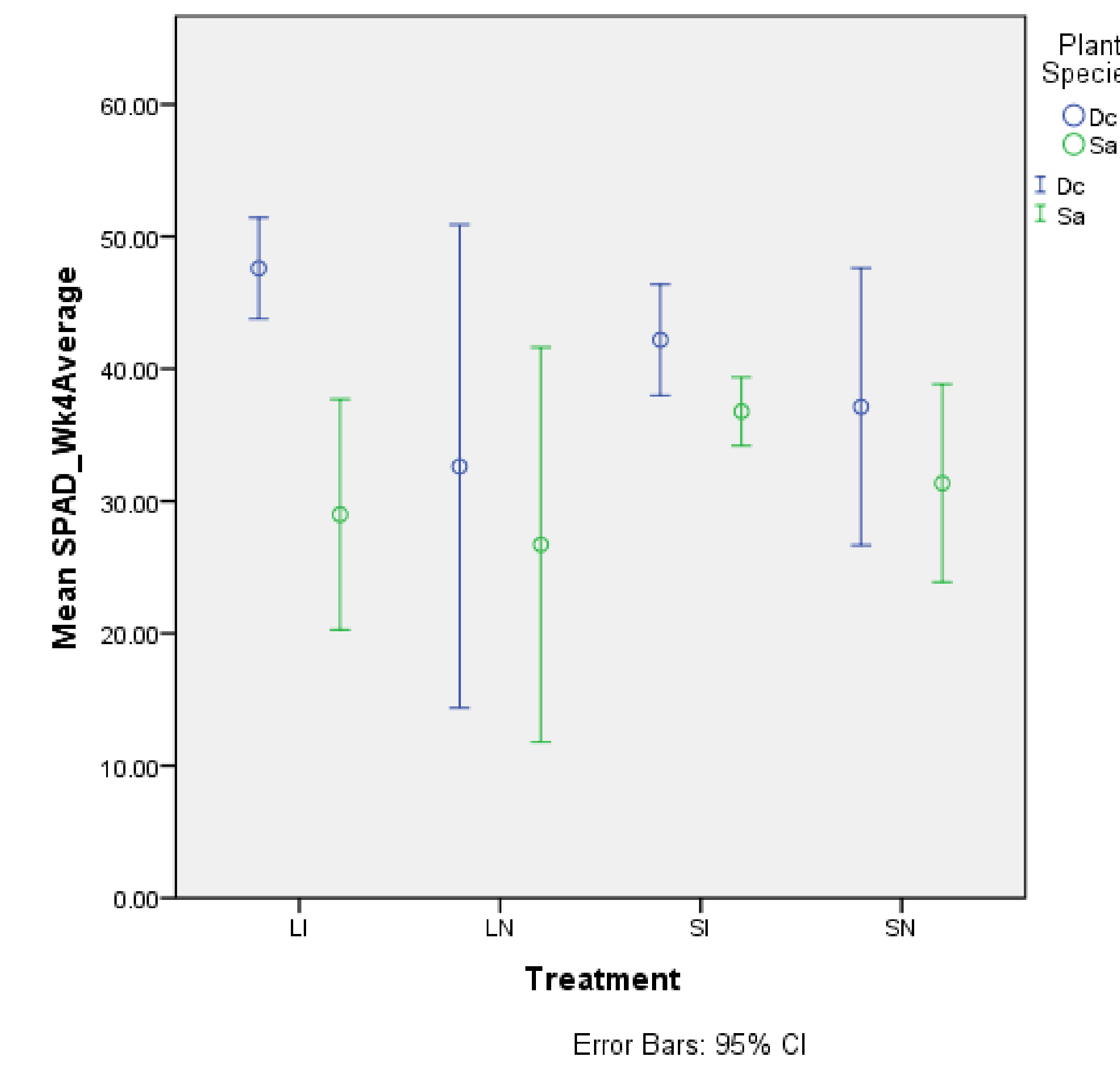
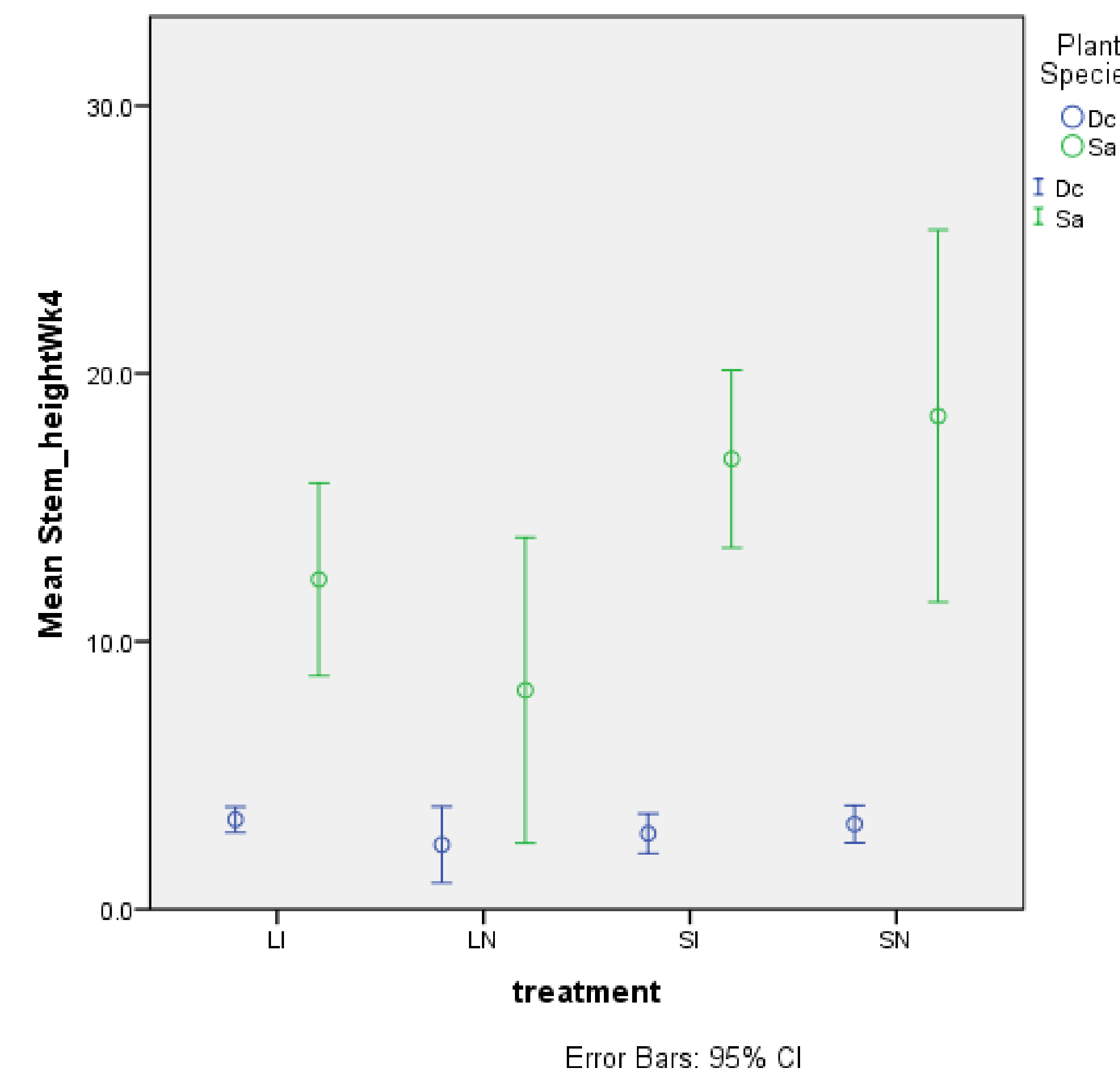
## Hypothesis

We hypothesize that the plant specimens planted in both sterilized and unsterilized soil that have been inoculated with commercial mycorrhizae will have greater stem height, chlorophyll content, respiration rates, and overall biomass then the specimens that are inoculated with wild mycorrhizae or completely sterile with no mycorrhizae present.

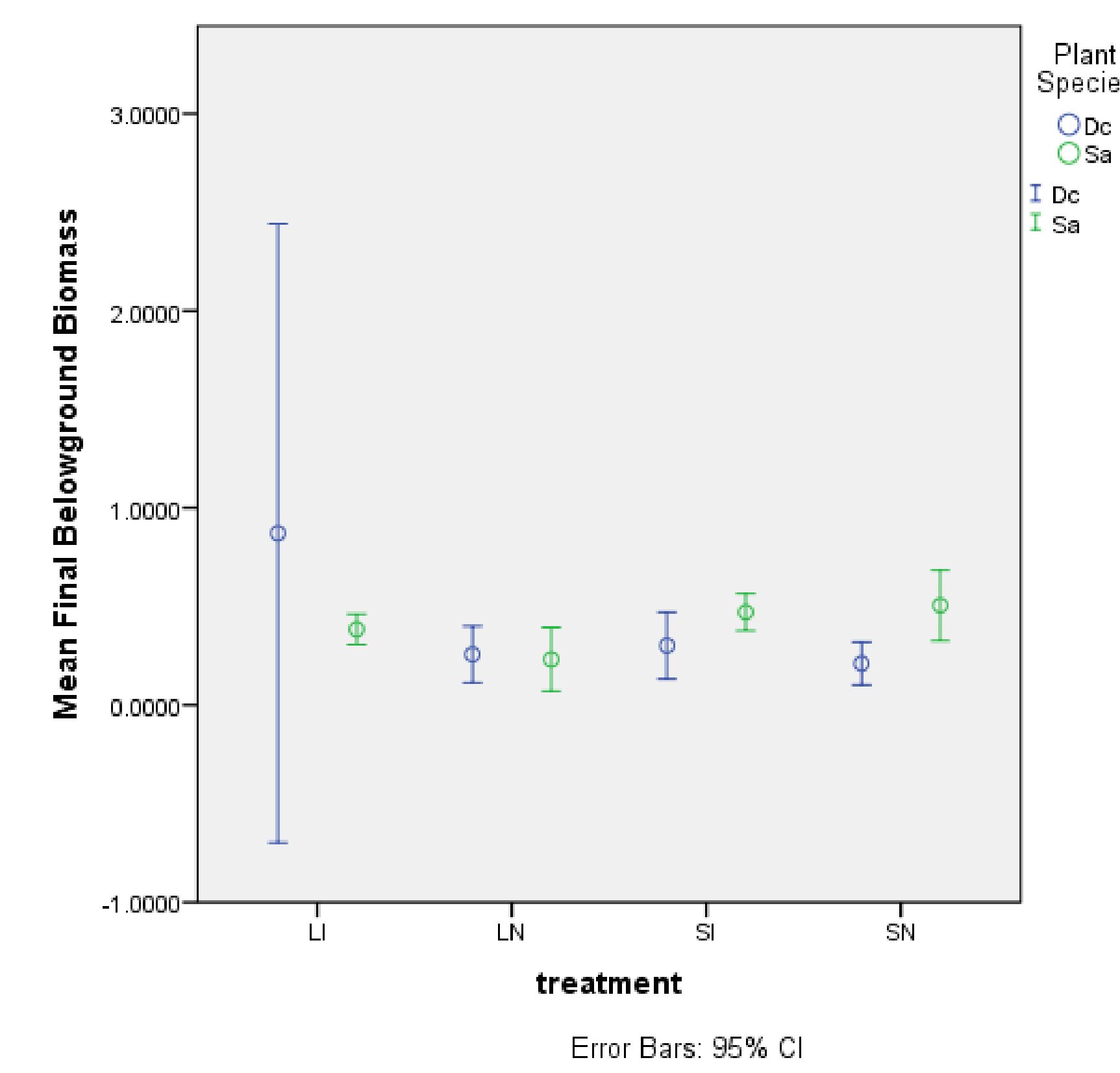
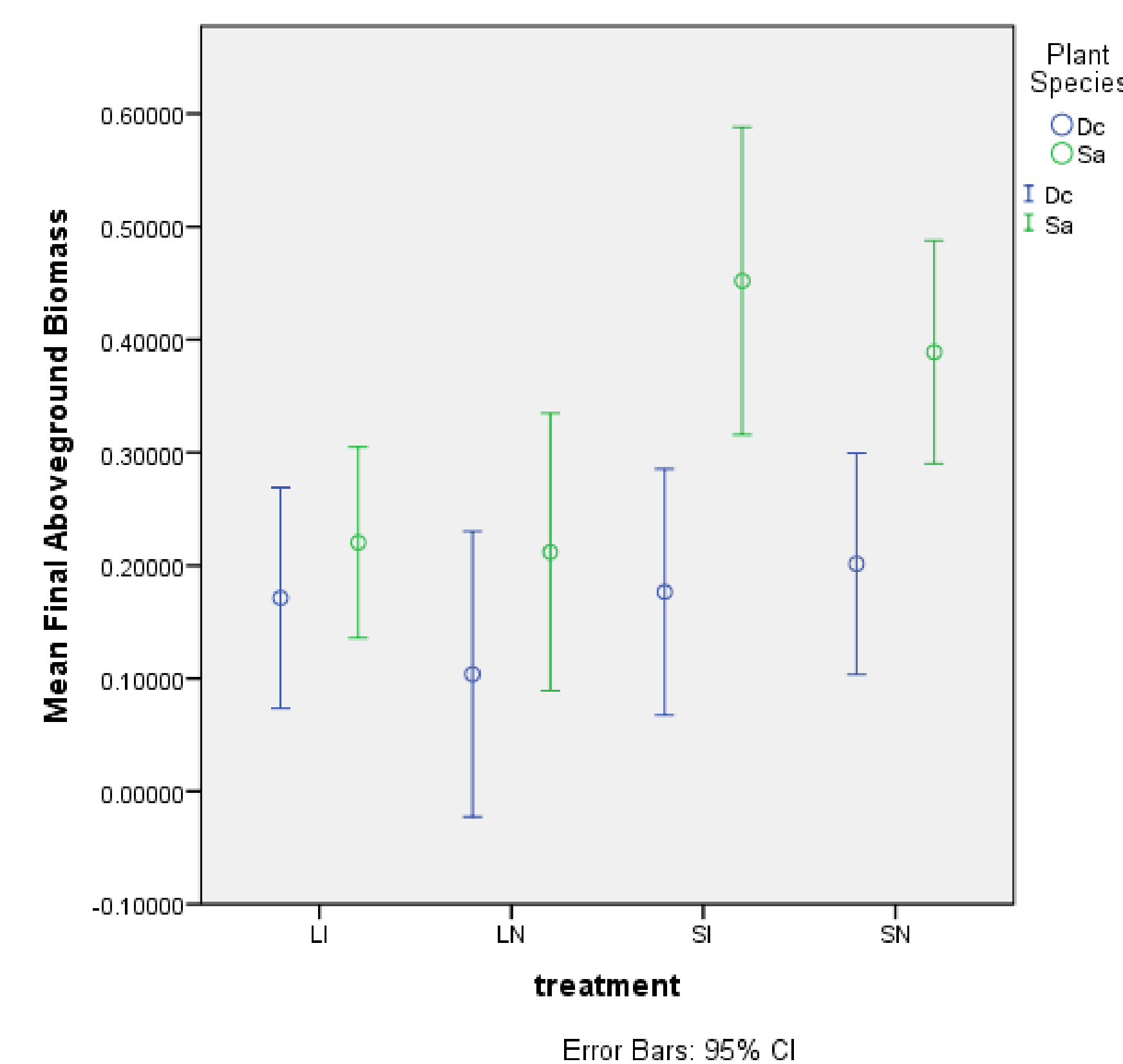


## Methods

- Both *Desmodium Canadense* and *Salvia Azurea* specimens were placed into 4 different treatment groups with 6 plants in each group. Treatment groups: Sterilized soil non-inoculated, Non-sterilized soil inoculated commercial, sterilized soil inoculated with commercial, non-sterilized non-inoculated.
- Calipers and a SPAD meter were used to measure the stem height and chlorophyll content of each plant weekly.
- At the conclusion of the study we harvested each plant, dried them, bagged them, and their biomass was measured.
- The data was entered into SPSS and an ANOVA was used to compare the data over the duration of the study. We looked at the data statistically focusing on the standard deviations to determine if there was a significant difference across the treatment groups for each species.

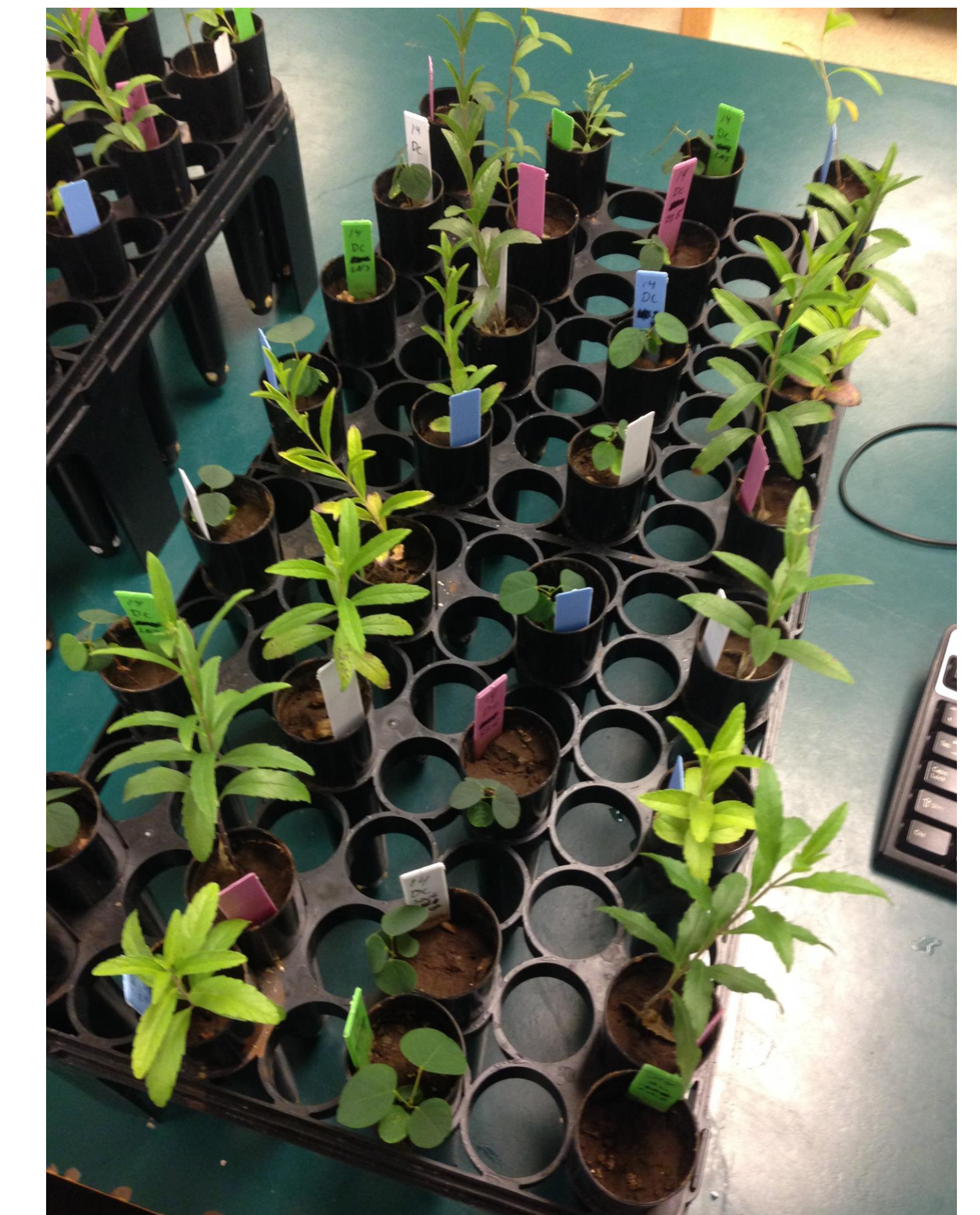


measured variable	F statistic	Overall treatment affect	Live VS. Sterilized	Inoculate VS. no inoculate	Plant species	Sterilization -inoculate interaction
Biomass (Below)	0.968	<0.467	0.686	0.196	0.939	0.264
Biomass (Above)	7.517	0.000	0.000	0.354	0.000	0.757
stem height	21.416	0.000	0.001	0.445	0.000	0.090
Chlorophyll content	3.071	<0.011	0.311	0.018	0.003	0.551



## Results

- Our studies showed that the *Salvia azurea* on average, grew a higher stem height with sterilized soil as opposed to live soil.
- Results from the SPAD meter showed no significant differences, other than the *Desmodium canadense* live non-inoculant may have had bad readings due to leaves being very small.
- The above ground biomass was significantly greater for the *Salvia Azurea* with sterilized soil.
- Our hypothesis was not supported by our studies because our results did not show any significant changes or differences across both species in general, in terms of the chlorophyll content, stem height, and biomasses.



## Literature cited

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