How to Make Research Posters

- Often made with Microsoft Office PowerPoint
- Specific guidelines and scientific conventions – if needed:
  - http://www.acm.org/crossroads/xrds3-2/posters.html
  - http://www.the-aps.org/careers/careers1/GradProf/glas.htm
  - http://forien.ncl.ac.uk/ming/dept/Tips/present/posters.htm
- Template on the next slide

The Effect of White Light on *Arabidopsis thaliana* (Landsberg erecta)

Filip, Itzel, Safa, Heba

PURPOSE AND HYPOTHESIS

In our experiment, we are testing whether or not varying *Arabidopsis thaliana* (landsberg erecta strain) genotypes, the wild type, and mutants, PhyA-201 and PhyB-5, respond differently to white light.
Our hypothesis was that all our mutants will grow to their greatest potential, in terms of height and color, in white light.

EXPERIMENTAL DESIGN

The experimental setup for this study consisted of 36 soil pods which were separated into three trays with 12 pods in each for each plant type. These trays were placed directly under white light, watered occasionally, and measured periodically.

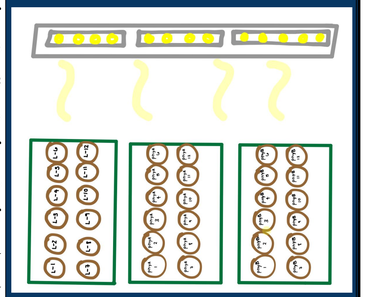

Figure 5: Experimental Setup

CONCLUSION

In conclusion, our results did not portray what we had initially predicted. Our original hypothesis was that all our plants would be able to achieve similar results in white light. However, that was not the case. Some became taller and less green (PhyB-5) while others stayed shorter but more green (wild type). In our data, we measured the heights and the shades of green (Figure 2) of all our plants for numerous days. From there, we realized that each batch of plants had immensely differing results in terms of length and greenness. Since the statistical significance of our data was found to be less that 0.1, we came to a conclusion that our data is reliable for our research. In our experiment, there were multiple errors that we could improve on if we tried this experiment again. First of all, during our experiment, we realized that we did not provide enough soil for our phyB-5 plants to grow. Since we did not expect our plants to grow this much, we placed the same amount of soil for each plant. There were also times where the scheduling for the watering was inadequate. Additionally, when labeling the plants, we unknowingly placed wooden labels which unintentionally introduced viruses through the wood. If we were to do this project again, we would know how to improve thanks to these errors.

ABSTRACT

Arabidopsis thaliana is considered to be the guinea pig of the plant world. This plant's response to photomorphogenesis includes unique differences between the height of the plant and the color of the leaves. In our experiment, we used genotypes, phyA-201, phyB-5 and the wild type, Landsberg erecta, to test whether or not they have varying reactions to white light in terms of height and color. PhyA-201's hypocotyls length are not affected if put in white or far red light. The ability to de-etiolation is reduced in the dark. PhyB-5's ability to produce long hypocotyls is strong in white and red light but not far red light. Since the phyB-5 have a strong allele to grow higher rather than produce a strong foundation with leaves which means that the color is lighter than the wild type because of the reduced levels of chlorophyll. The plants had been placed and watered every other day, for the most part and their day began at five in the morning and ended at nine in the evening. In the end it had come down to that the phyB-5 mutant had been taller and less green than the other two that had been more green but shorter.

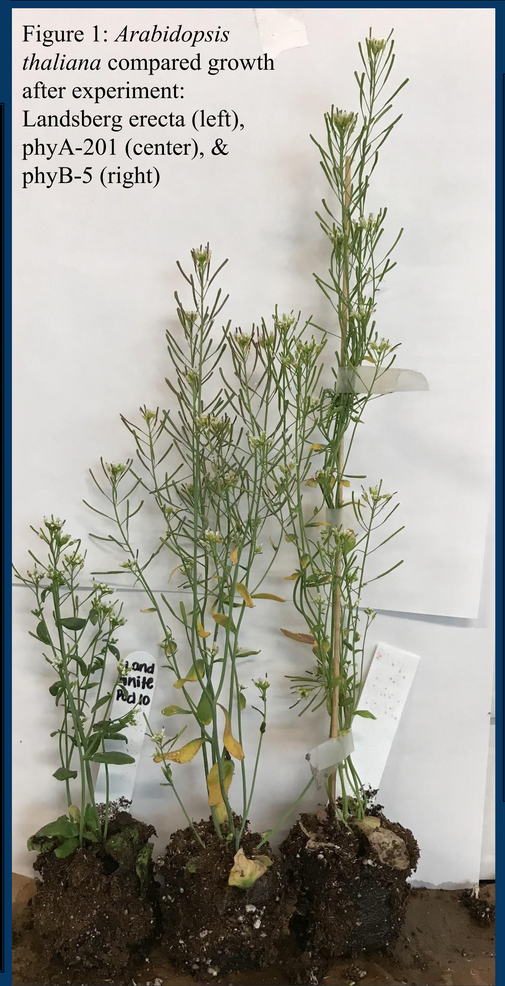

Figure 1: *Arabidopsis thaliana* compared growth after experiment: Landsberg erecta (left), phyA-201 (center), & phyB-5 (right)

RESULTS

- We measured the length of the hypocotyls in centimeters and the color of the leaves with a plant color scale (Figure 2). We then calculated the averages for each data set from this information.
- The statistical significance for our experiment was less than 0.1.
- In Figure 1, as represented by the height, each mutant type responded differently to the white light.
- In Figure 3, as you can see, it measures the height (cm) of the *Arabidopsis thaliana* which PhyB-5 grows exponentially but PhyA-201 was greater than the Landsberg wild type but not as much PhyB-5 due to the light response of the mutants.
- In Figure 4, which measures the color of the plants with a 1-8 color scale (figure 2), Landsberg became greener compared to the rest of the mutants, but phyA-201 exponentially improved due to the response that the mutant has to the white light.
- PhyB-5 remained the least green of all three because the plant invested all of its energy growing up instead of establishing a strong green, energy-filled base.

Figure 2: Green color scale used for measuring on a scale of 1-8

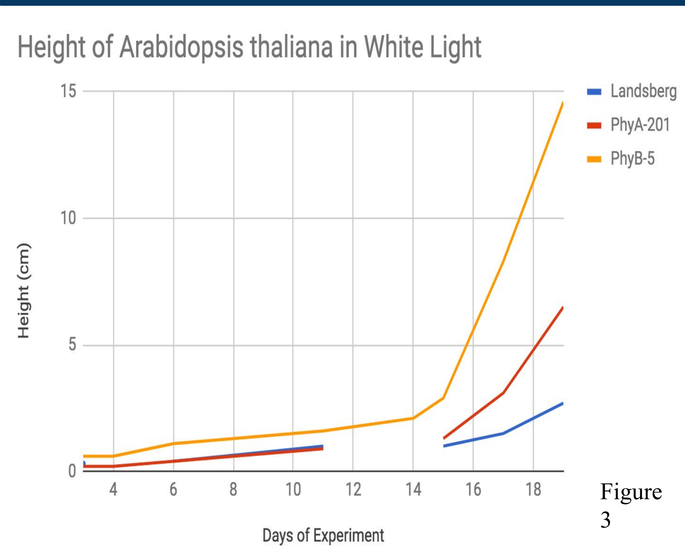

Figure 3

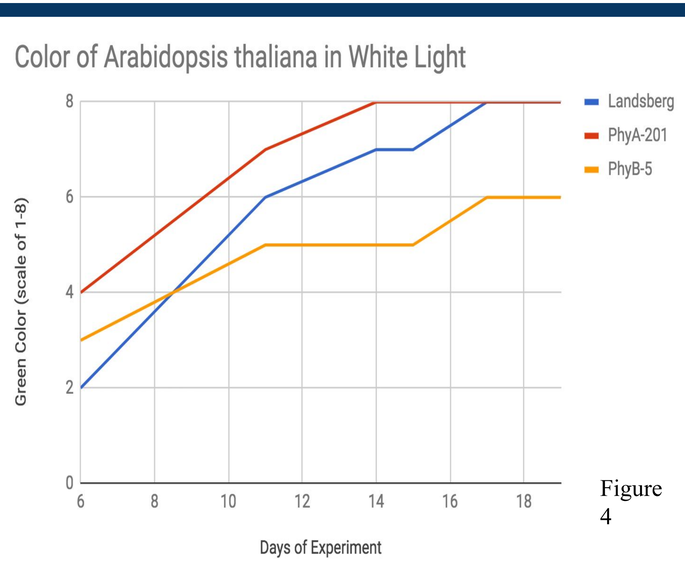

Figure 4

BIBLIOGRAPHY

"Polymorphism: phyB-5". *The Arabidopsis Information Resource* Phoenix Bioinformatics, 7 February 2007
"Polymorphism : phyA-201". *The Arabidopsis Information Resource* Phoenix Bioinformatics, 8 July 2014
"Control of hypocotyl elongation in *Arabidopsis thaliana* by photoreceptors interaction". *NCBI,* April 1999
"Arabidopsis Contains at Least Four INdependent Blue-Light-Activated Signal Transduction Pathways". *NCBI,* June 1999

ACKNOWLEDGEMENTS

We would like to thank Dr. Susan Mary Bush, from Trinity College. Though she tends to work with tomatoes, she was an excellent resource to us and our Arabidopsis experiment.