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How Light Affects Plant Growth

Introduction:

Plants need sunlight to conduct the process of photosynthesis. Light plays a factor in how plants produce photosynthesis, by intensity as well as source (Paradiso, 2019). This source could be from natural sunlight to synthetic sunlight. Even within a species light affects how they grow and produce photosynthesis (de Costa, 2019). Therefore, plants that have a higher concentration of light should have an increase in photosynthetic processes.

Methods:

A styrofoam quad was obtained. A watering container was filled to the half-way mark, this was for a self-watering mechanism. Four small wicks and a watering pad was placed into the container to soak. The small wicks, after soaking, were placed half-way within each cell. The white felt pad (watering pad) was then placed within the watering container to soak. The four cells within the quad was then filled half-way with dirt. Fertilizer pellets were then placed, and the soil was moistened. Two seeds were then placed into each quad as well as moistened again. The quad was labeled. The watering pad was then placed half-way through the cut lid and was folded onto the lid of the now closed watering container. The styrofoam quad was then placed on the watering pad that was laid on the lid. The watering container with the styrofoam quads was then placed under a grow light. The plants were then under the lamp for a week and observed. Plants were then observed every week for two weeks. Measurements such as leaf count, overall height, and leaf width were taken within every observation. The tallest plant within each cell was kept and the others were pruned.

Results:

The results showed that the height of stems was averaged by the specific quads. The trend shown are differential based from a one-week growth period (Figure 1.1). The quad heights from lowest to highest were ranged from (0 – 50.7 cm). The overall height average of all plants was slightly below 20cm.

The results also show that within the quad data, that the average leaf width was taken. It was clear that the leaf width was about the same for all plants. (Figure 1.2). The overall average showing the width being from (1 to 2 cm). The results also show an outlier with a leaf width of 5.5 cm (Figure 1.2) They were all placed under a lamp, showing that their similarity in growth could be due to the same rate of light being placed above them.

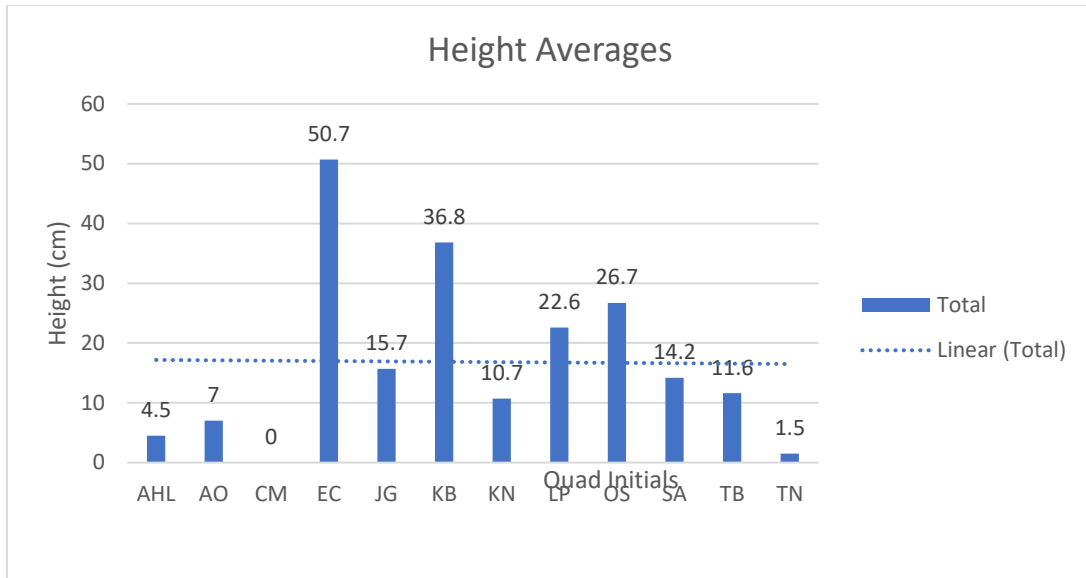


Figure 1.1: What the average of what the height of the stems were based in each individual quad

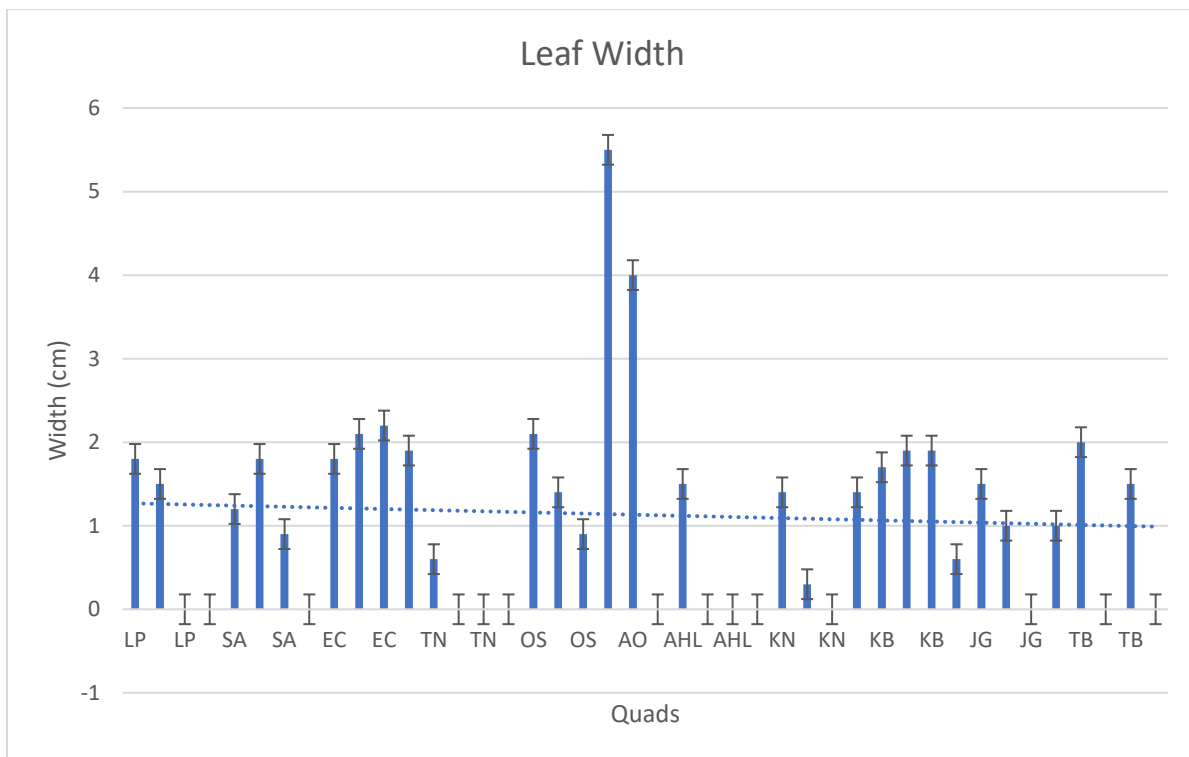


Figure 1.2: What the average leaf width based in each individual quad

Discussion:

Overall the results showed that the plants grew at the same rate and size. More specifically in leaf width, it was clear that the plants produced about the same width due to same light levels they were under. It is made clear that the amount of light from the sunlight had not made a significant trend.

Citations:

De Costa, et al., (2019). "Physiological and growth strategies of two Cariniana species in response to contrasting light availability". *Flora*. Vol. 258

Paradiso, R et. Al., (2019). "Growth, photosynthetic activity ad tuber quality of two potato cultivars in controlled environment as affected by light source." *Plant biosystems*. Vol 153