

By Thomas Black, Kevin Johnson, and Jordan Kalmeyer

Introduction

The Auxin hormone within plants plays a vital role in plant growth. Possibly the best known function of auxin involves the growth of a plant toward a light source. Auxin has also been known to help with other functions, including root gravitropism, phyllotactic patterning, and leaf vein and root hair formation (Blilou et al. 2005). We decided to experiment with the function of auxin in roots since some plants have the ability to produce a root system from a clipping and become a complete plant (Esau K. 1953). The application of auxin to the cutting base and to stimulate adventitious root primordia growth is probably the best-known means of promoting rooting in all kinds of cuttings (Tchoundjeu. et al. 2002), and because of this we decided to see how the addition of auxin would affect the rooting process of a plant that can do it naturally. A quick google search showed that the best sized clippings for the rooting process are three inches long. Leaves and buds are known sites of auxin production have been found necessary for the rooting process in a number of species (Moore. 1969) so it is reasonable to assume that a single leaf would be able to grow roots on its own. With two clipping sizes chosen, we choose a third, one inch clipping, to bridge the gap. Our final problem was realized in that tree species vary considerably in the optimal application of auxin and there is also much intraspecific variation (Leakey. et al. 1982). Adding too much auxin to a plant can kill it due to an uncontrolled amount of growth.

Materials and Methods

The materials needed are one sedum plant large enough to get enough clipping off of for the experiment, seventy two pots, dirt, Auxin, and plant food.

For our experiment we took a *Sedum* plant and cut twenty four three inch and twenty four one inch clippings, we also took twenty four single leaves from the plant. For twelve of each size clipping we dipped the bottom of the stem into the auxin and planted them. The other twelve of each size were planted without Auxin.



Results

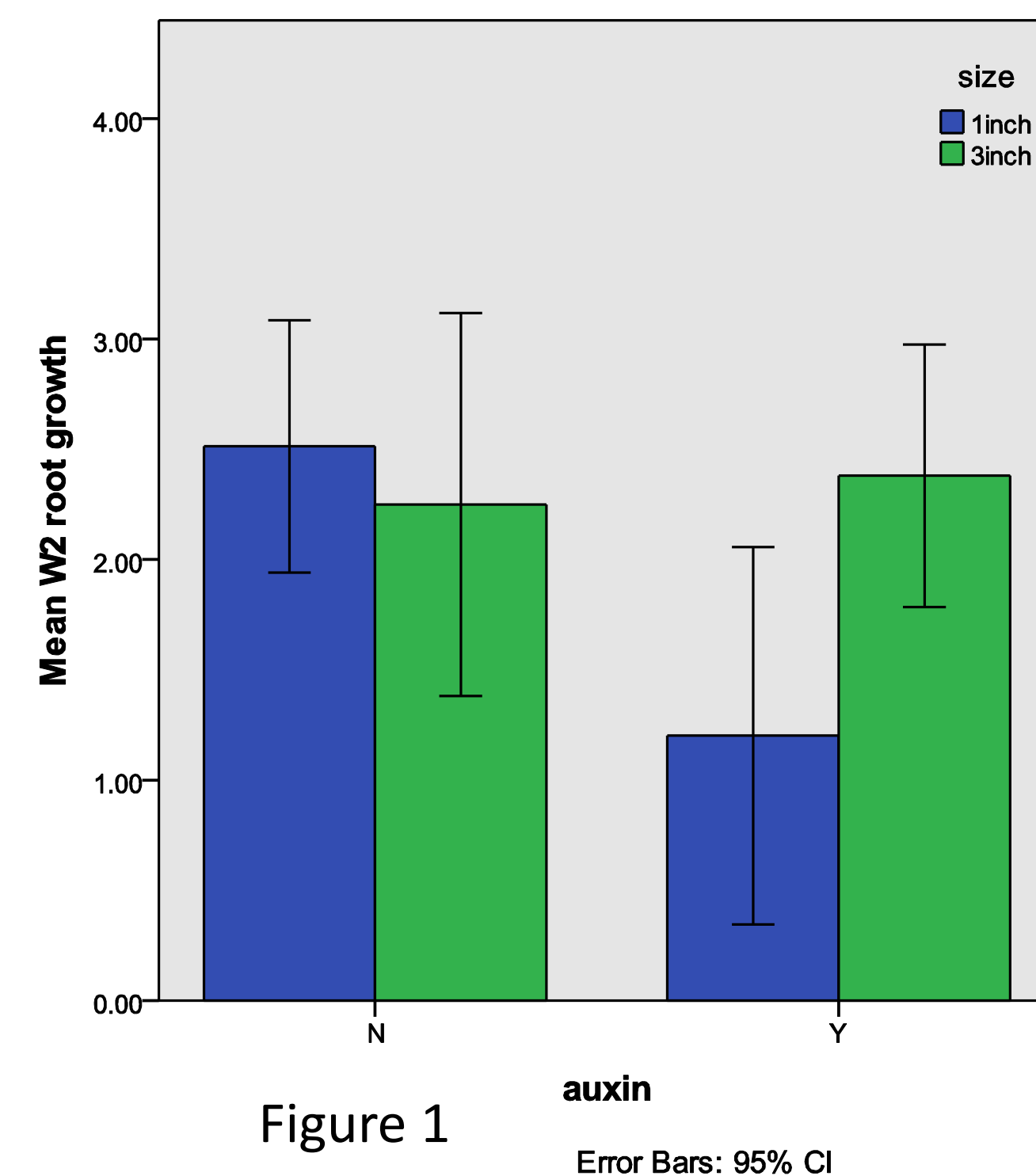


Figure 2 shows the average growth height of week two in one inch and three inch plants both those given Auxin and those not given Auxin.

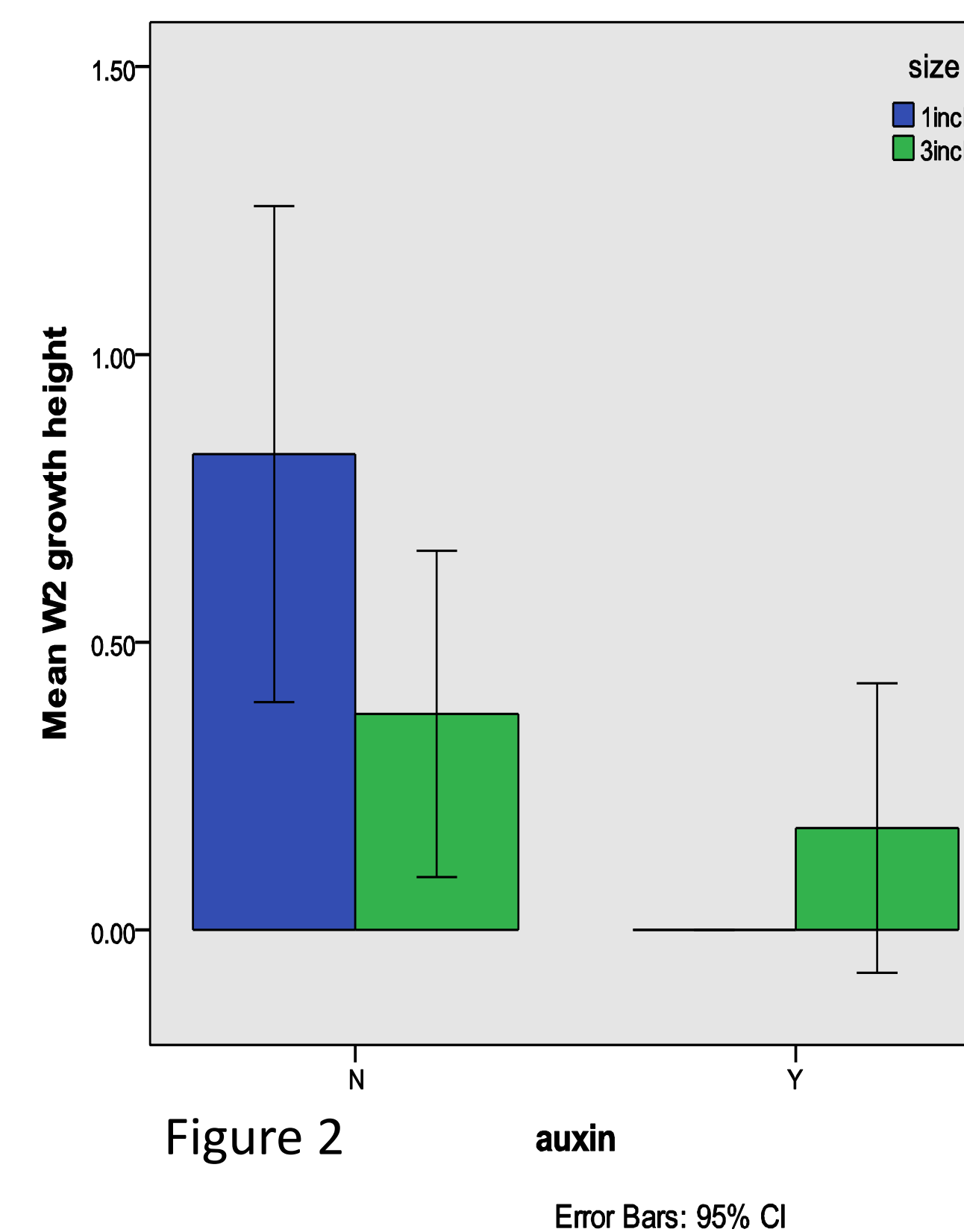


Figure 3 shows the average number of new leaves of week two in one inch and three inch plants both those given Auxin and those not given Auxin.

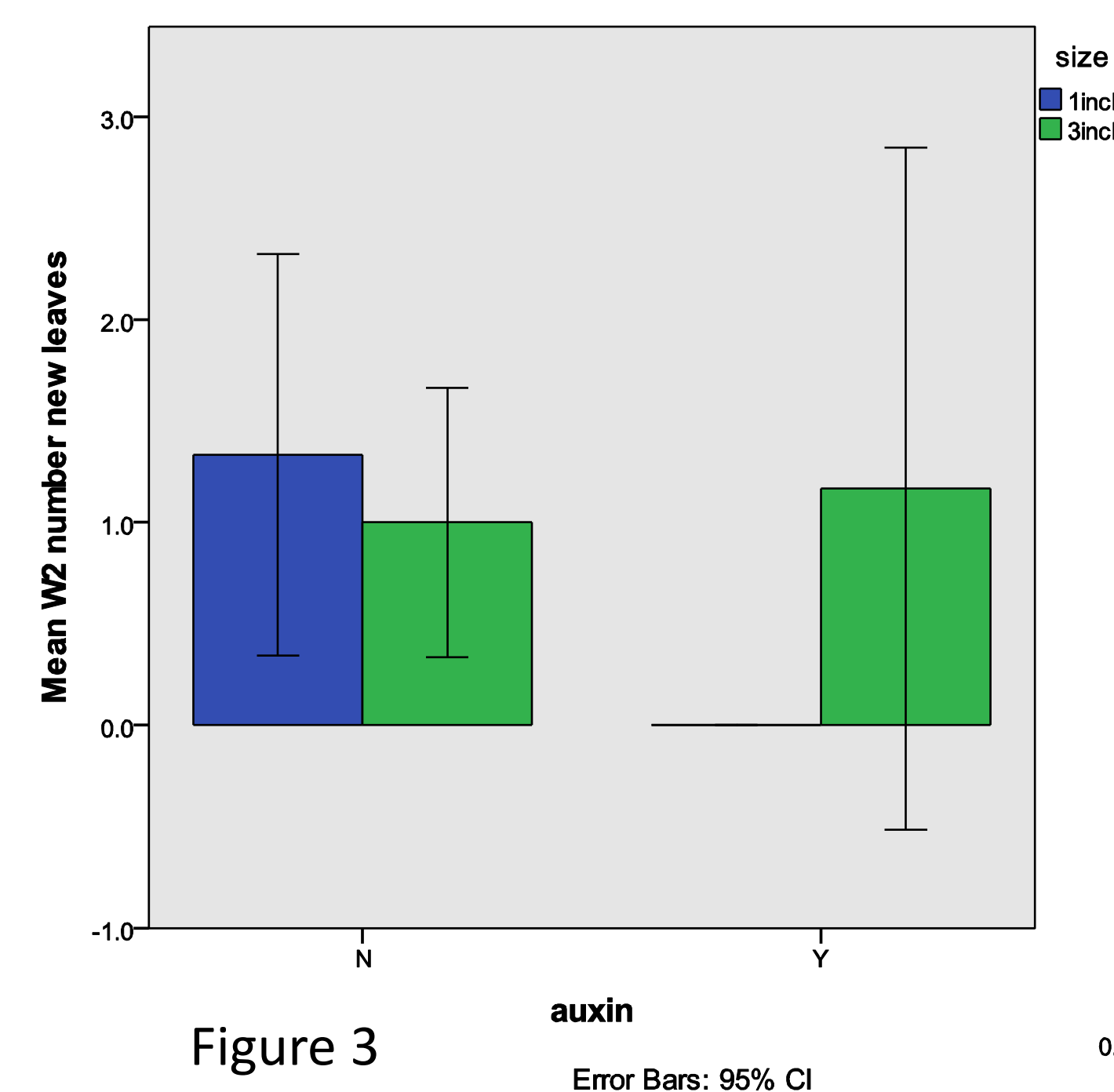


Figure 4 shows the average growth height of week one and two for plants given Auxin and plants not given Auxin.

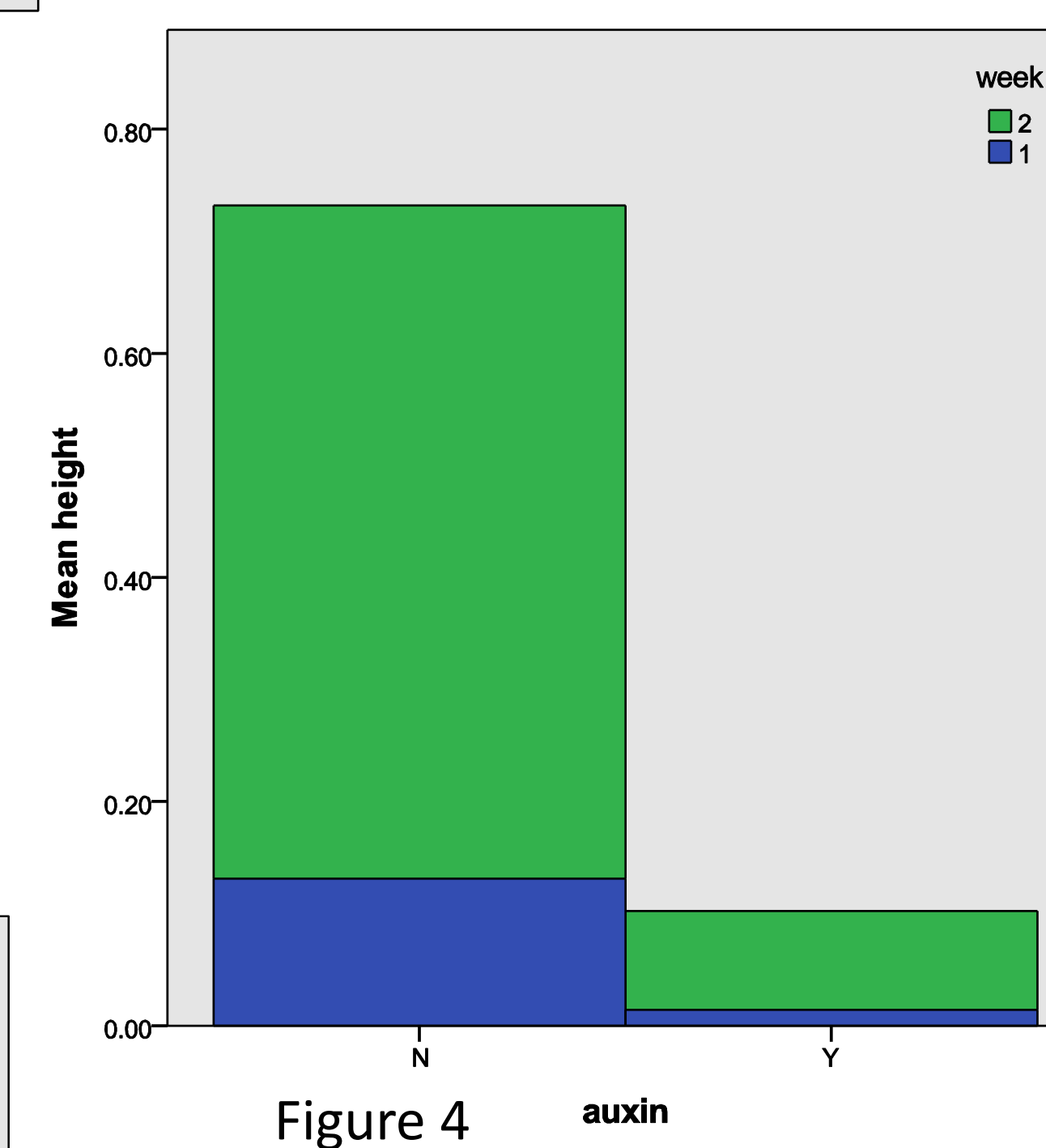
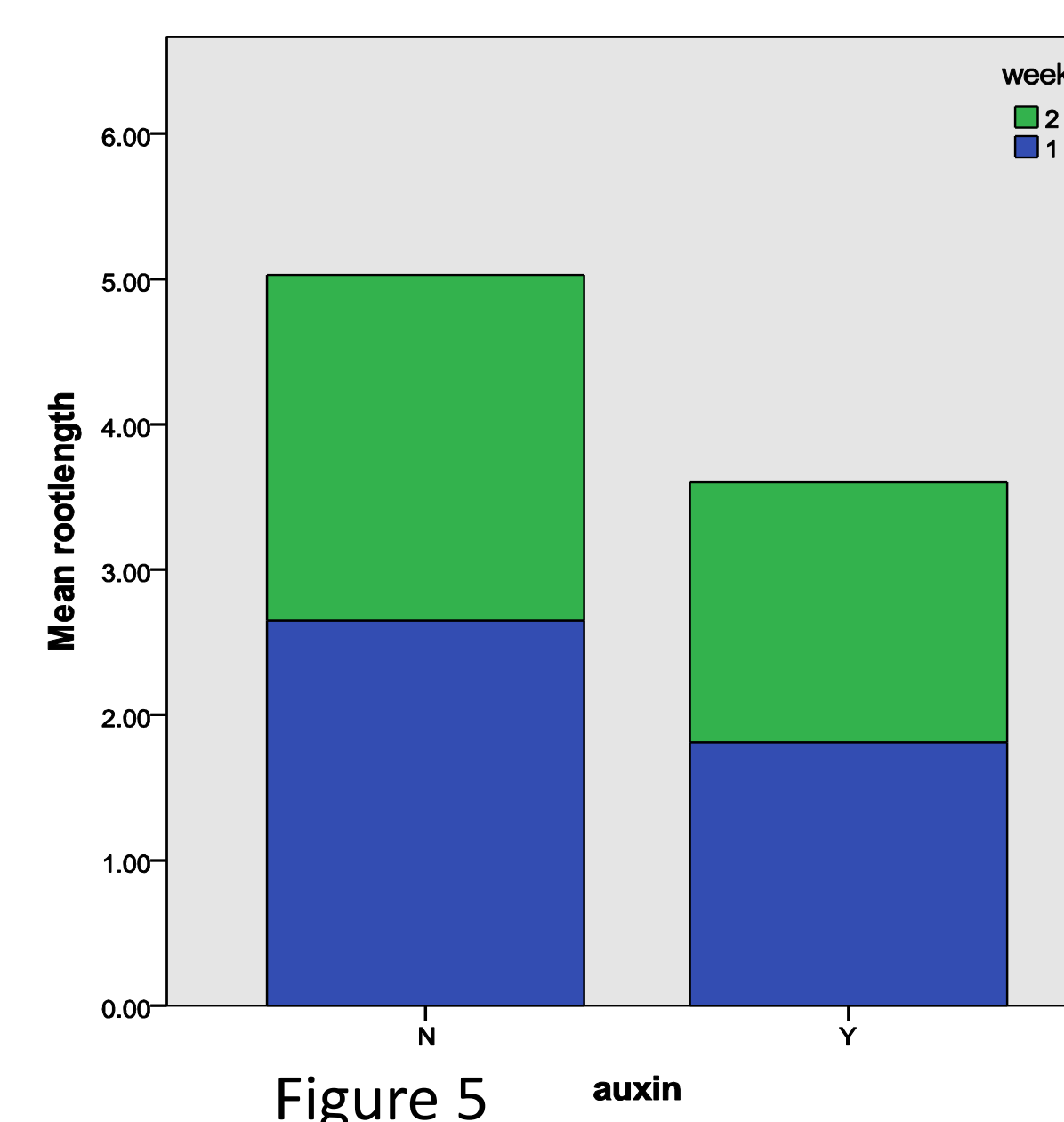


Figure 5 shows the average root growth for week one and two for plants given Auxin and plants Not given Auxin.



Conclusion & Discussion

In our experiment, our goal was to test the effects of auxin when introduced to plant stems. We hypothesized the plant would have significantly increased root and shoot growth. However, the experiments showed that the subjects introduced to auxin at the stem inhibited the plants ability to root at all. Even lowering the ratio to 0.001ppm of auxin given to the plants, slowed all growth of the plant. The plants with no auxin added showed significantly better growth in root, stem height, and new leaf development. As Seen in Figure 1 of the plants given lesser ratio of auxin the three inch plants were able to handle it a lot better than the one inch plants. As for the single leaves, they were unable to handle the higher ratio of auxin. We tested the lower ratio of auxin on a group of leaves and after two weeks we did see minor root growth on a few of the single leaves, but most were starting to decay at this point.



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