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Materials and Methods

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**Analysis of Temperature Affecting Plant Development**

The materials used in this experiment included a refrigerator, an incubator, and the lab room to see which temperature affects development. For the three different environments, there were three separate reservoirs (Styrofoam quad cells) which were placed on top of Tupperware containers containing water and a water mat so the plants would be watered without human help. Three Wisconsin Fast Plant seeds, three fertilizer pellets, soil, and water were all added into the reservoir.

Before the experiment was conducted, the project group decided what the different factors would be that affected growth of the Wisconsin fast plant *(Brassica rapa).* The group decided to grow *Brassica rapa* in a refrigerator set to 4 degrees Celsius, in an incubator set to 37 degrees Celsius, and the lab room which is set to 23 degrees Celsius serving as the control. Three Tupperware containers were obtained and filled with water and a water mat leading from the water in the container to the top of the lid. Placed on top of the Tupperware lid and water mat, were a Styrofoam reservoirs divided into four sections filled with wicks. Soil was added to fill the quad cell halfway and moistened slightly. Three fertilizer pellets were added to each quad cell and more moistened soil was added to fill up the cells. Three seeds were added to each quad cell and water was added by the use of a pipet. Shallow depressions were made at the top of each cell and potting mix was added to cover the seeds. On day five, a group member came to thin the plants so that there would be one plant per cell.

As stated in Hatfield’s experiment, warmer temperatures expected with climate change and the potential for more extreme temperature events will impact plant productivity. This is shown in our project by the extreme temperatures of the incubator and refrigerator. Also stated in Hatfield’s experiment was that responses to temperature differ among crop species throughout their life cycle and are primarily the phenological responses, i.e., stages of plant development. This could be a reason for our results being different in comparison to Hatfield’s.

Reference:

Hatfield, J (December 23, 2014). Temperature extremes: Effect on plant growth and development. Retrieved November 1, 2016, from Science Direct, http://www.sciencedirect.com/science/article/pii/S2212094715300116