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|  |  | |  |  |  |  | | --- | --- | --- | --- | | **Measurement** | **Average Difference** | **Percentage Difference** | **Probability\*** | | Plant Height | 3.26 cm | 10.59% | 32.45% | | Plant Mass | 0.21 g | 5.08% | 84.95% | | Leaf Length | 0.73 cm | 14.74% | 17.21% | | Leaf Width | 0.26 cm | 9.12% | 45.67% | | Pod Length | 1.42 cm | 58.84% | 0.0021% | | Root Length | 0.0026 cm | 0.035% | 65.05% | | Pod Mass | 0.037 g | 208% | 4.44% | | Pod Width | 2.56 cm | 96.46% | 12.29% | | Stem Diameter | 0.13 cm | 4.81% | 71.77% | |  |  |  |  | | \* probability of data occurring by chance | | | |   Our findings can be categorized into two major categories: the effects of electromagnetic fields on early growth and later growth.  In the early growth (first fifteen days), few statistically significant differences were observed. Both, the control and experimental plants were of the same height and had approximately the same number of leaves. None of the three seeds on experimental coordinate (1,0) germinated. The control plants were slightly darker green than the experimental plants.    *Graph 1: Early Growth Plant Height:* On average, during the first fifteen days of growth, plants from the control and experimental setups were the same. However, it is interesting to note that the experimentals seemed to grow quicker during the first half while the controls were larger towards Day 15.    Graph *2: Early Growth Plant Leaf Count:* Plants from the control and experimental setups had approximately the same number of leaves throughout all of early growth from Day 5 to Day 15.  When the plants were removed from the liners, it was observed that some of the plants were stunted and dead. As the control and experimental sample sizes were large (32 each), plants that died did not skew the data. By having a larger sample size, the margin of error was reduced.  In the later growth (from 15 to 43 days), significant differences were observed. As the plants grew taller, the stems and leaves started tangling with each other. Tiny yellow flowers were observed on the eighteenth day of the cycle, and seedpods were noticed by the thirtieth day in both the setups. Both the experimental and control plants started flowering and seeding at the same time. On average, control plants were shorter than the experimental plants. Controls had larger leaf lengths and slightly larger leaf widths than the experimentals. The pod masses and widths in the experimental were larger than those in the control, while the control seedpods were longer. The experimental pods were greatly shriveled, heavier, and deformed, whereas the control pods were longer and slender. An interesting observation was that most of the deformed pods were found within the experimental bucket, whereas normal pods were found directly outside the experimental bucket.    *Graph 3: Later Growth Plant Height:* On average, plants from the control setup were shorter. The difference between the control and experimental averages is 3.26 cm, which is a percentage difference of 10.59%. The probability of the height data occurring by chance is 32.45%.    *Graph 4: Later Growth Plant Mass:* On average, plants from the control setup had a slightly greater mass. The difference between the control and experimental averages is 0.21 g, which is a percentage difference of 5.08%. The probability of the mass data occurring by chance is 84.95%.    *Graph 5: Later Growth Leaf Length:* On average, plants from the control setup had a larger leaf length. The difference between the control and experimental averages is 0.73 cm, which is a percentage difference of 14.74%. The probability of the leaf length data occurring by chance is 17.21%.      *Graph 6: Later Growth Leaf Width:* On average, plants from the control setup had a slightly larger leaf width. The difference between the control and experimental averages is 0.26 cm, which is a percentage difference of 9.12%. The probability of the leaf width data occurring by chance is 45.67%.    *Graph 7: Later Growth Pod Length:* On average, plants from the control setup had a much larger pod length. The difference between the control and experimental averages is 1.42 cm, which is a percentage difference of 58.84%. The probability of the pod length data occurring by chance is 0.0021%.    *Graph 8: Later Growth Root Length:* On average, plants from the control setup had a slightly larger root length. The difference between the control and experimental averages is .0026 cm, which is a percentage difference of 0.035%. The probability of the root length data occurring by chance is 65.05%.    *Graph 9: Later Growth Pod Mass:* On average, plants from the experimental setup had much larger pod masses. The difference between the control and experimental averages is .037 g, which is a percentage difference of 208%. The probability of the pod mass data occurring by chance is 4.44%.    *Graph 10: Later Growth Pod Width:* On average, plants from the experimental setup had much larger pod widths. The difference between the control and experimental averages is 2.56 cm, which is a percentage difference of 96.46%. The probability of the pod width data occurring by chance is 12.29%.    *Graph 11: Later Growth Stem Diameter:* On average, plants from the control setup had a slightly smaller stem diameter. The difference between the control and experimental averages is 0.13 cm, which is a percentage difference of 4.81%. The probability of the stem diameter data occurring by chance is 71.77%. |