

Planting Science Final Project

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Date: 11/8/2023

introduction

For the past one to two months, me and my partner Landon have designed an experiment testing the germination rate of a leek in different soil types. We tested growing the leek in potting soil, manure, and baseball field dirt. The baseball field dirt did the worst, the potting soil and manure did the best in our experiment.

Plant life cycle

First: a seed is planted in the ground.



Second: the seed germinates and produces a small plant.



Third: that small plant matures and creates flowers.



Fourth: these flowered plants turn the flowers into fruits or vegetables.



Fifth: The fruits are harvested and the seeds get planted and the cycle starts over.



What a plant needs to grow and how.

For a plant to grow effectively, you need the right amount of water a lot of sun, and nutritious soil. When plants grow, the leaves absorb sunlight and create glucose for food. They also absorb water through the roots and transport it throughout the plant. The stems transport water and nutrients. Plants also need the right amount of humidity which differs depending on the plant. If you overwater plants things like root rot can occur and it will kill the plant. If they don't get enough light they get “leggy” or flimsy, change color and can die. If the humidities to high too much water will evaporate. If plants don't get enough nutrients they get stunted growth, plant tissue dies, or leaves turn yellow.

What was your group testing?

In this experiment me and my partner Landon grew 30 plants. We were both in charge of collecting the data of 15 plants each. In the experiment we tested the germination rate of different soil types such as baseball field dirt, potting soil, and manure and daily measured their heights and how much they were leaning. We also recorded the day each individual plant sprouted.

What did you conclude from your group's data? What led you to this conclusion?

In conclusion, I believe that we overwatered some of the plants and this could have caused some plants to die. I also found out that they grow faster in more sun and higher temperatures which also could have caused these plants to take longer to germinate. The leeks were also very flimsy and none stood up straight most likely due to these problems.

What questions does this experiment raise for you and your group?

Would the outcome have changed if we had more light so that the germination rate was faster? Or if we gave the plants the right amount of water would this have made more of our plants grow and/or make them grow faster? Why were our plants so flimsy and couldn't stay upright, is there something we could have done to change this?

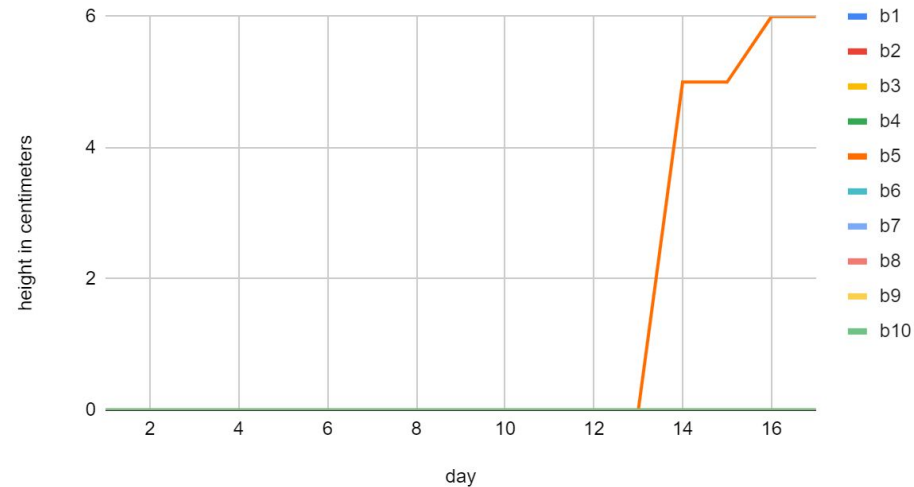
How could you use this data to create an additional experiment to support your findings?

For another experiment we could find how much water that leeks need on average to sprout and instead of just pouring water on top measure it before and then put an even amount of water on each to make a more reliable conclusion. We could also do the experiment at a better sunnier time of the year.

The plants planted in baseball field dirt did the worst and only 1/10 of them grew. I advise using potting soil or manure instead.

day	b1	b2	b3	b4	b5	b6	b7	b8	b9	b10
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	5	0	0	0	0	0
15	0	0	0	0	5	0	0	0	0	0
16	0	0	0	0	6	0	0	0	0	0
17	0	0	0	0	6	0	0	0	0	0

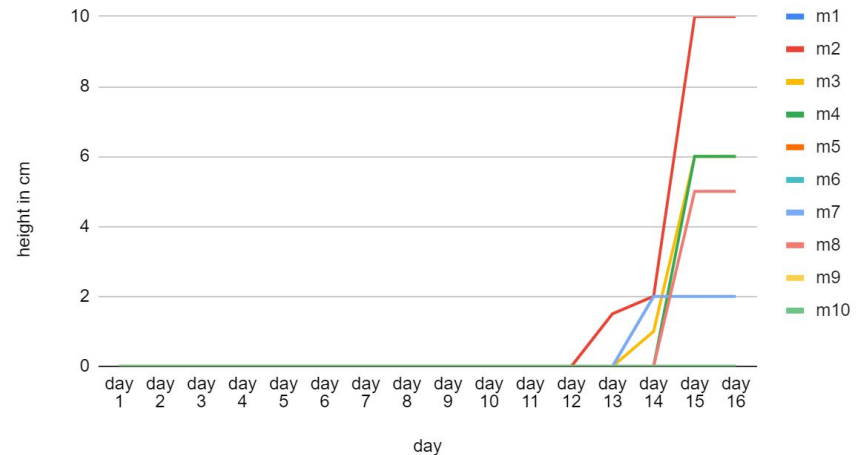
baseball field dirt leek growth chart



The plants planted in manure did as good as potting soil and way better than baseball field dirt.

day	m1	m2	m3	m4	m5	m6	m7	m8	m9	m10
day 1	0	0	0	0	0	0	0	0	0	0
day 2	0	0	0	0	0	0	0	0	0	0
day 3	0	0	0	0	0	0	0	0	0	0
day 4	0	0	0	0	0	0	0	0	0	0
day 5	0	0	0	0	0	0	0	0	0	0
day 6	0	0	0	0	0	0	0	0	0	0
day 7	0	0	0	0	0	0	0	0	0	0
day 8	0	0	0	0	0	0	0	0	0	0
day 9	0	0	0	0	0	0	0	0	0	0
day 10	0	0	0	0	0	0	0	0	0	0
day 11	0	0	0	0	0	0	0	0	0	0
day 12	0	0	0	0	0	0	0	0	0	0
day 13	0	1.5	0	0	0	0	0	0	0	0
day 14	0	2	1	0	0	0	2	0	0	0
day 15	0	10	6	6	0	0	2	5	0	0
day 16	0	10	6	6	0	0	2	5	0	0

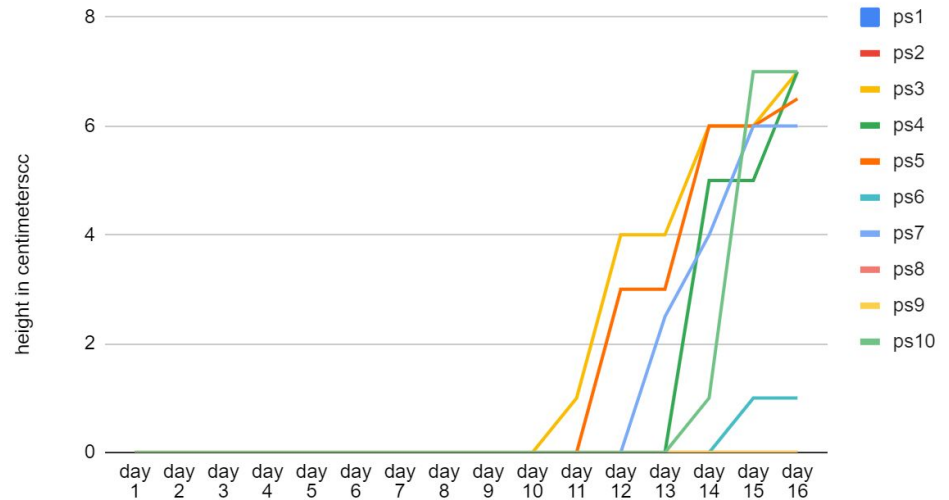
manure leek growth chart



	ps1	ps2	ps3	ps4	ps5	ps6	ps7	ps8	ps9	ps10
day 1	0	0	0	0	0	0	0	0	0	0
day 2	0	0	0	0	0	0	0	0	0	0
day 3	0	0	0	0	0	0	0	0	0	0
day 4	0	0	0	0	0	0	0	0	0	0
day 5	0	0	0	0	0	0	0	0	0	0
day 6	0	0	0	0	0	0	0	0	0	0
day 7	0	0	0	0	0	0	0	0	0	0
day 8	0	0	0	0	0	0	0	0	0	0
day 9	0	0	0	0	0	0	0	0	0	0
day 10	0	0	0	0	0	0	0	0	0	0
day 11	0	0	1	0	0	0	0	0	0	0
day 12	0	0	4	0	3	0	0	0	0	0
day 13	0	0	4	0	3	0	2.5	0	0	0
day 14	0	0	6	5	6	0	4	0	0	1
day 15	0	0	6	5	6	1	6	0	0	7
day 16	0	0	7	7	6.5	1	6	0	0	7

The plants planted in potting soil did as good as manure but way better than baseball field dirt.

potting soil growth chart



How would your findings be helpful in “real life”?

During this experiment I learned that it truly matters how much water each plant gets and how much sunlight it needs to survive. Later in life if I ever would want to plant something whether it's shrubbery or just household plants for decoration. I have a better chance at them surviving.

What challenges did you face as a group during this experiment?

We were on about day 7 of our experiment when the plants weren't sprouting and we had to restart everything. During the next experiment I left for a week leaving landon to have to collect data for 30 plants every day which must have been difficult considering the fact he only had about a half hour. He managed though and gave me the data when i returned.

What are your thoughts regarding the online work required with this experiment? What challenges did you face? What did you find helpful?

During this experiment, I found the online work helpful because it was easy to keep track of my papers and we could look up our questions instead of having to search through a book. I found it working on our laptops was more fun than on paper and I was more eager to do my work. Being able to keep track of our graphs on here was easier and we could send our stuff to the scientist easier.

How did you feel about working with a scientist mentor during this experiment? What challenges did you face? What did you find helpful?

Evelyn Elkington (our scientist) gave us some good ideas and taught us a few cool facts about plants and fungi. She gave us topics to research, answered some of our questions, and helped us with our experiment. Even though this was helpful most of the time I had trouble updating the scientist at a few points in time such as when I was absent.