The Speed of Germination

Introduction

The whole purpose of this experiment was to find out if different size seeds grow at different speeds. For this experiment we used corn, turnip, and pumpkin seeds. We grew them all in plastic cups and gave them all the same amount of water and sunlight. We took measurements daily and recorded all the data on a piece of paper.

My Question

Does the size of the seed affect the germination time?

I will be planting several seeds of different size and I will monitor their growth over several weeks. We will see if the overall size of the seed can predict if the seed will grow faster, or slower.

Research

"In contrast to conventional wisdom, the relationship between [height] and seed size was positive, despite a strong negative correlation between seed size and average RGR, meaning that large-seeded rather than small-seeded species have higher growth potential."

"Seedlings from large seeds produced longer roots and shoots than those from small seeds and were able to emerge more rapidly. The seed size had a clear effect on survival with seedlings from large seeds having the highest survival."

"SEED SIZE influences germination of many coniferous seeds or the initial growth of the resulting seedlings. Often both are affected. In general, large seeds have been found to germinate faster and more completely than small seeds and to produce seedlings whose initial growth is greater"

Hypothesis

I believe when germinating seeds, the smaller a seed happens to be, the faster the seed will sprout.

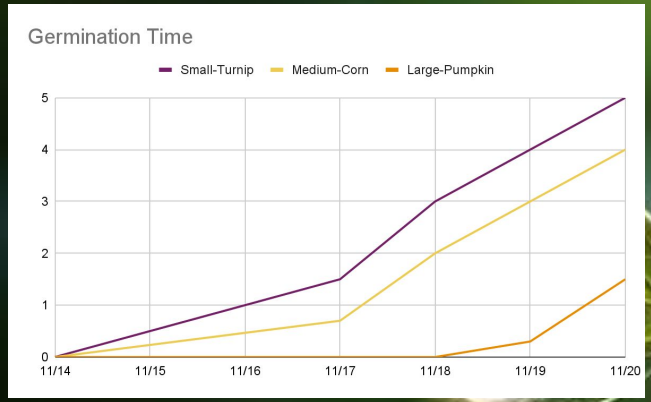
Materials

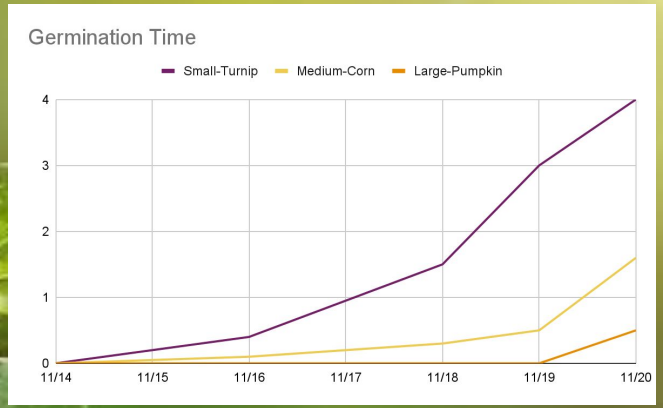
Nine seeds (three of each size), container, cotton balls, water, labels, ruler, and my journal.

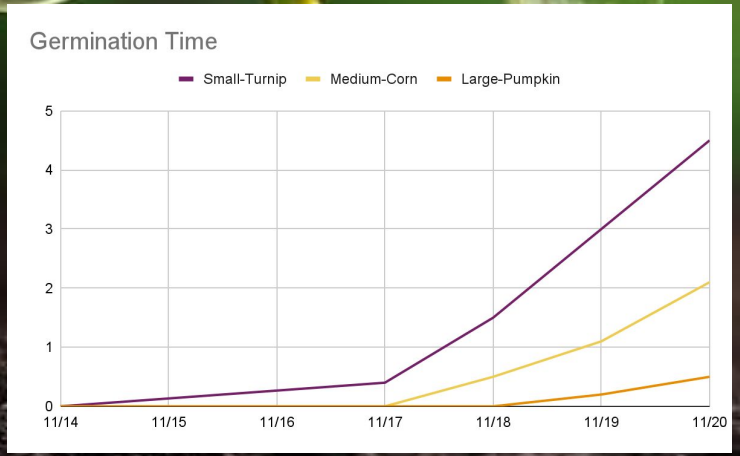
Procedures

I will use 3 different seeds with different sizes. I will use the same cotton balls in plastic containers. I will water them the same every day. I will give them the same light source. I will keep them inside of the house for light and bring them outside one hour a day. I will measure the height of each plant and record it daily.

Graphs and Data

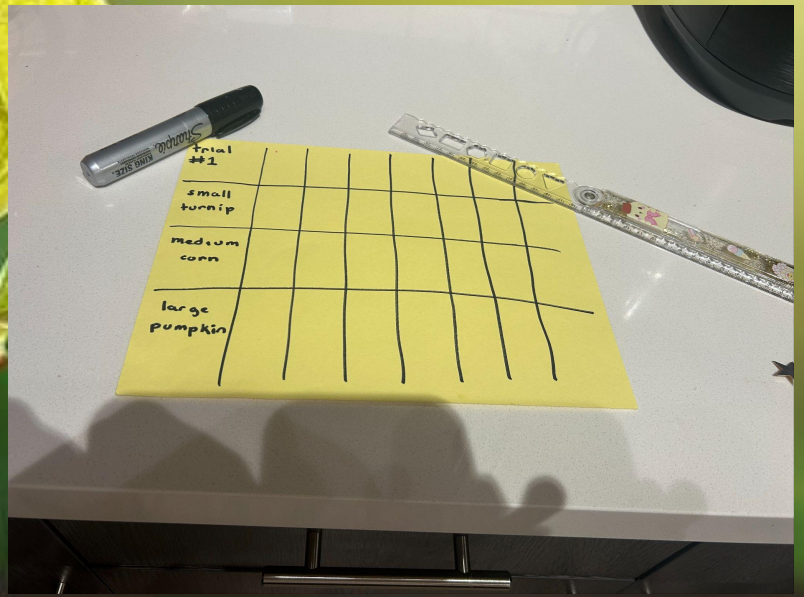






Pictures

LIVINGSTON
ORNAMENTAL CORN
LIVINGSTON
PUMPKIN
LIVINGSTON
small - turnip
medium - corn
large - pumpkin


trial #1
small turnip
medium corn
large pumpkin

Pictures

Pictures

Conclusion

The smaller seeds did indeed germinate faster just as I had predicted. Reviewing the results, the turnip seeds, which were the smallest, germinated the fastest. This was followed by the corn in second place, and the pumpkin seeds came in last, growing the slowest of all the seeds.

Implications and Ideas for Future Research

If I were to do this experiment again, I would consider giving all the plants more sunlight. This would let them all grow at a slower pace, and not stretch so much. I would also consider putting them in soil to give them all the nutrients they need instead of cotton balls which only worked for so long.

Web Page References

Growth rates, seed size, and physiology: do small-seeded species really grow faster? <https://pubmed.ncbi.nlm.nih.gov/18543628/>

”Effect of Seed Size on Germination, Emergence, Growth and Seedling Survival of *Senna occidentalis* Link.” <https://scialert.net/fulltext/?doi=pjbs.2000.292.295>

Effect of Seed Size on Germination, Growth, and Survival of Slash Pine <https://www.srs.fs.usda.gov/pubs/misc/EffectofSeedSizeonGermination,Growth,andSurvivalofSlashPine.pdf>

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Bye bye!!