

**Laser Plants:
A Plant Growing Hack?
By Seth Taylor**



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TIMETABLE

January 2025 - background research

February 2025 - choosing what kind of plant I'd like to use, buying supplies, writing procedure.

February 23 - March 10 - plant seeds and follow procedure for next 16 days

CHOOSE A TOPIC

Our family plants a garden every year. The growing season is so short in Calgary, and it always takes so long for the seeds that we plant in the ground in May to sprout. I did this to see if we could start our plants indoors earlier and be able to harvest the plants faster. It would also be cool to have fresh veggies to eat in the middle of winter.

BACKGROUND RESEARCH

Process of plant growth: seed, germination, growth, reproduction/pollination, seed spreading

(<https://www.natgeokids.com/uk/discover/science/nature/the-life-cycle-of-flowering-plants/>)

Light is important for plants. Light of any kind is helpful for a plant. (University of Minnesota Extension).

Plants require light from the sun or grow lights for photosynthesis. Plant leaves capture sun, then convert and store that energy as a sugar called glucose. Plants use glucose for energy. Too little or too much light can cause issues for plant health and growth.

(Little Green Thumbs www.littlegreenthumbs.org)

Where to buy laser? Amazon has a 3 pack for \$13.20

Where to buy soil? Amazon has a small bag for \$4.39

Cat grass takes 7-10 days to grow to optimal size (on seed packet)

Plants need light to grow and for photosynthesis

(<https://extension.umn.edu/planting-and-growing-guides/lighting-indoor-plant>)

Plants need good soil, there is a way to prepare the soil so the plant will grow optimally (www.gardendesign.com)

Plants require lights to grow, especially in the winter when the sun is not strong enough or through a window.

(University of Saskatchewan College of Agriculture and Bioresources)

Cat grass needs to have soggy soil but not drenched, moderate amount of water.

(<https://ontariospca.ca/blog/how-to-grow-cat-grass-indoors/>)

Other supplies to buy: poster board, cardstock, cat grass seeds (Canadian Tire), phone stand for laser (Dollarama)

TESTABLE QUESTION/PURPOSE

What is the effect of laser light on the rate of plant growth?

HYPOTHESIS

If a plant is exposed to laser light, it will grow faster than a plant not exposed to laser light because light is essential for photosynthesis (converting light energy into plant growth) and more light will make the plant grow faster.

MATERIALS

- Ruler (to measure plants)
- laser
- 20 seeds (cat grass)
- stand for laser (phone stand)
- 2 small plant pots
- tray for plant pots
- measuring cup for water
- spray bottle
- Dechlorinated water (tap water left out overnight)
- plastic wrap
- log book
- tape to hold laser in place
- Sunlight through window

PROCEDURE

1. Fill two cups with soil
2. Plant 10 seeds in each pot
3. Place pots in tray (to prevent soil and water leakage)
4. Set up laser stand
5. Water the seeds daily
6. Turn on laser from 3pm-5pm daily
7. Wait for germination and let the plants grow...
8. Measure plants daily once they have measurable growth

VARIABLES

Controlled variables: sun, water, dirt, positioning, time, seeds

Manipulated variables: laser on one plant

Responding variable: plant growth

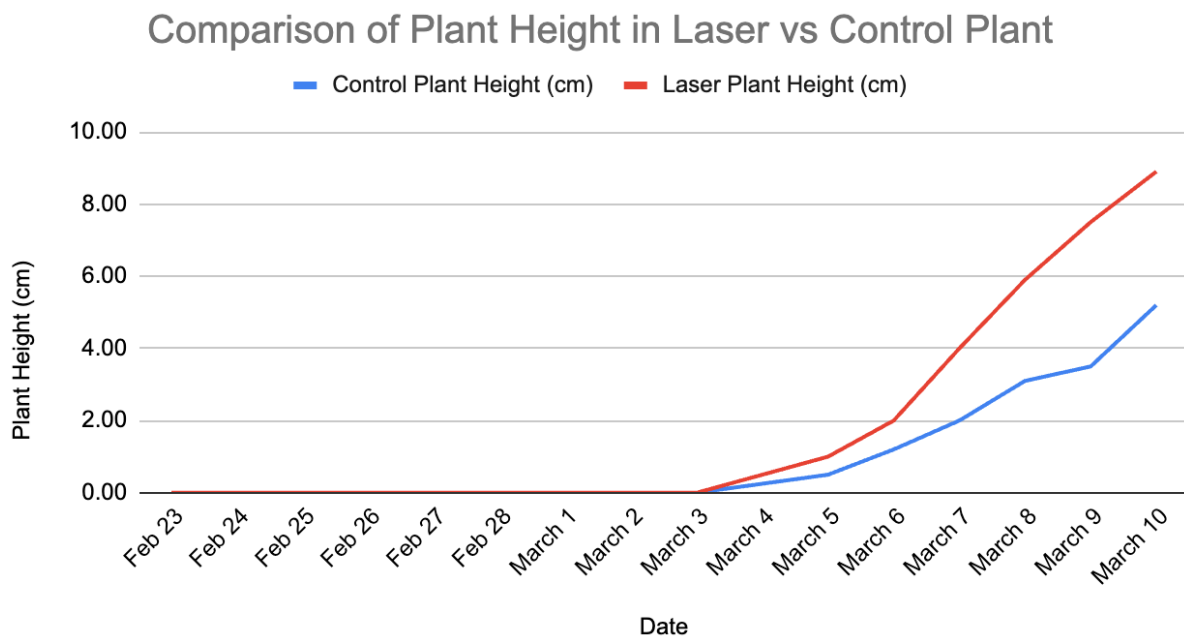
DATA

Date	Control Plant Height (cm)	Laser Plant Height (cm)	Water given (both plants)	Laser Exposure Time (min)	Observations
Feb 23	0.00	0.00	10.00	120	moist
Feb 24	0.00	0.00	2.00	120	no growth
Feb 25	0.00	0.00	2.00	120	dry
Feb 26	0.00	0.00	5.00	120	still dry
Feb 27	0.00	0.00	5.00	120	no growth
Feb 28	0.00	0.00	1" in tray	-	moist
March 1	0.00	0.00	-	-	-
March 2	0.00	0.00	1" in tray	150	really dry
March 3	0.00	0.00	2.00	120	added plastic wrap
March 4	0.25	0.50	2.00	120	sprouted!
March 5	0.50	1.00	1" in tray	120	growing
March 6	1.20	2.00	2.00	120	wow grew a lot!
March 7	2.00	4.00	2.00	120	laser plant so much taller!
March 8	3.10	5.90	4.00	120	growing!
March 9	3.50	7.50	1" in tray	120	wow!
March 10	5.20	8.90	2.00	120	Lots of new stalks - one almost as tall as the tallest one!

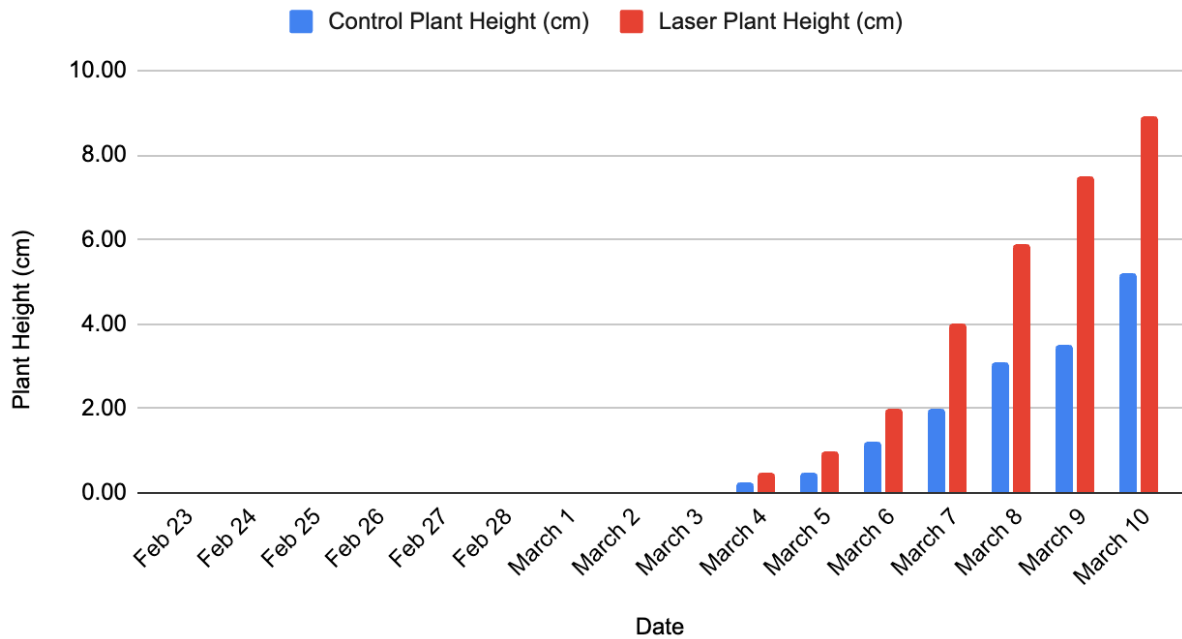
RESULTS

After growing for 16 days, the control plant was 5.2 cm high and the plant exposed to laser light was 8.9 cm high.

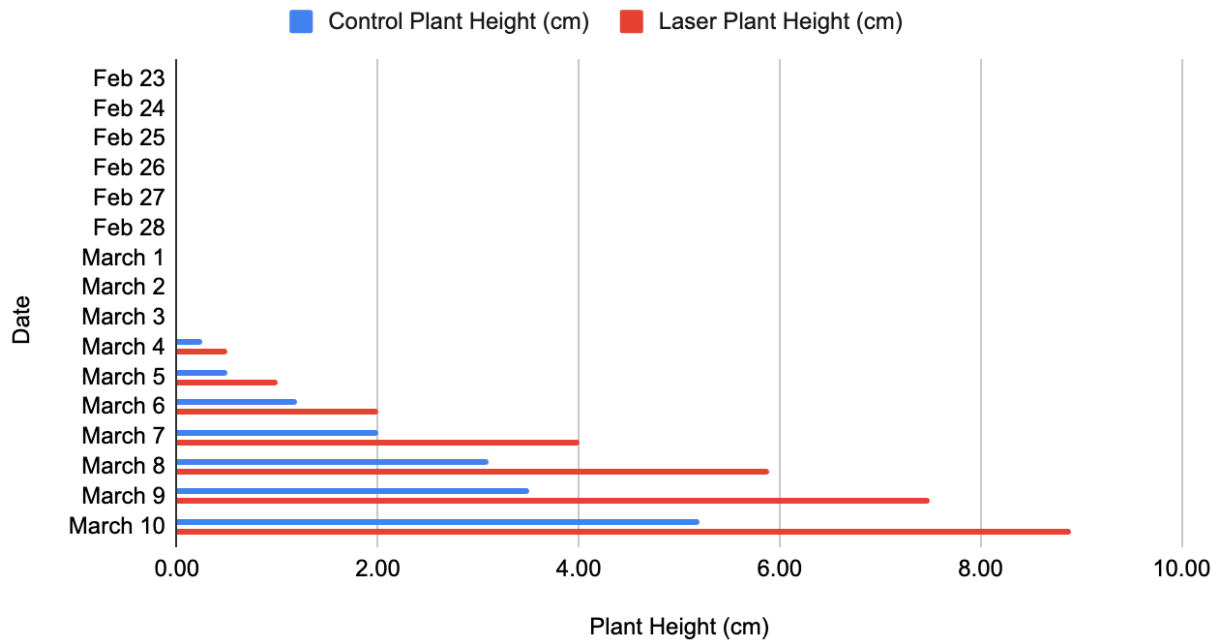
While I was waiting for the seeds to germinate, the plant was really dry. Knowing from my background research that cat grass requires moist soil/moderate amount of water, I decided to add plastic wrap on top of both the plants to retain moisture. This helped both the plants grow and I don't think this affected the original hypothesis. I did take the plastic wrap off during laser exposure.



Comparison of Plant Height in Laser vs Control Plant



Comparison of Plant Height in Laser vs Control Plant



CONCLUSIONS

The plant that was exposed to laser light for 2 hours a day grew 3.7 cm taller than the plant not exposed to laser light. The amount of water, sunshine, dirt, seeds and time to grow was consistent for both plants (controlled variables). Therefore my hypothesis was correct and the plant with a laser on it grew faster than the controlled plant because it had more "light".

RECOMMENDATIONS/APPLICATIONS

I learned that indoor plants in the winter need at least 12 hours a day of light, usually supplemented (not just sunlight) to grow properly.

If I were to do this project again, I would plant my seeds earlier, I would give them more water to begin with and add the plastic wrap covering from day one. For further research, it would be interesting to know the optimal amount of time to add the laser light (eg is 6 hours too much? 12 hours? Is more light better?)

I think that I can take what I learned doing this project and grow plants indoors during the winter.