

PTMC JR. FINAL PROJECT REPORT GRAPHIC ORGANIZER

Team Name:
Space Mustangs



1 Team Photo



2 **Independent Variable:**
Urea, Worm casting, Dr.Earth,
All Purpose Fertilizer

3 **Dependent Variable:**
Plant growth, width, and
height

4 **Controls/Constants:**
Vermiculite and water

5 Hypothesis:

Based on our research we believe Urea Ammonia would be the best fertilizer for this experiment cause of it's high concentration. rich in nutrients, a solid nitrogen fertilizer, high crop yield, not only that it can be farmed in alkaline and acidic soil it also can be used in dry or wet lands. So this fertilizer is very versatile.

6 Background/Resoning

The Lunar landscape is the closest to Earth which allows the research to be communicated faster, leading to many opportunities in the experiement.

Our reason is that since the moon is going to be used to simulate how grow crops on mars is going to be like and its the next step we have to take to advance to the future

7 Experimental Rational

Our experiment on the moon may validate our hypopthesis, help us discover any pro's and con's with our variables.

Which will expand our knowledge of planting on the moon regarding mars, because we are trying to duplicate the conditions of the moon by giving it artificial lighting, minimal water, keeping it at a stable temperature.



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8 Grow Pot Setup:

Pot	1 (control)	2	3	4	5	6	7	8	9	10
Soil Composition	50% Regolith 50% Vermiculite	50% Regolith 50% Vermiculite	50% Regolith 50% Vermiculite	50% Regolith 50% Vermiculite	50% Regolith 50% Vermiculite	50% Regolith 50% Vermiculite	50% Regolith 50% Vermiculite	50% Regolith 50% Vermiculite	50% Regolith 50% Vermiculite	50% Regolith 50% Vermiculite
Amendments	vermiculite	vermiculite	vermiculite	vermiculite	vermiculite	vermiculite	vermiculite	vermiculite	vermiculite	vermiculite
Crop	Lettuce	Lettuce	Lettuce	Lettuce	Lettuce	Lettuce	Lettuce	Lettuce	Lettuce	Lettuce



9 Procedures

Watering- we added 100ml of water 2 times a week and later on by growth week 4 we observed it wasn't enough so we started to add 200ml of water 2 times a week.

Fertilizer- we added a fixed amount of fertilizer for all pots at 2ml of fertilizer and the all purpose fertilizer which was the only liquid one was

Data Collection- the plants from the pot will be measure every friday

10 Experiment Photos:

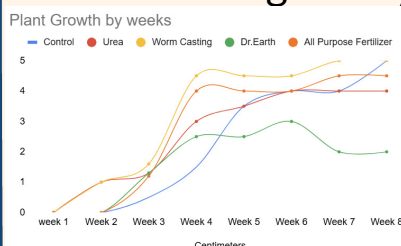
Document your team's 8 week project through images



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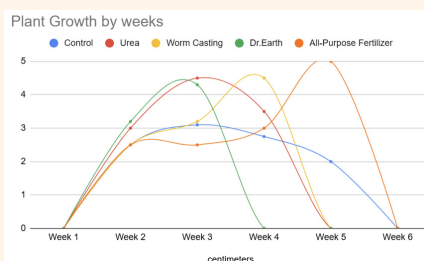
11 Data Collection

List and organize your results



Set 1

Set 2



12 Analysis

Summarize and draw meaning to your findings and results

With the team tasked with measuring the plants consistently every friday for expect during Thanksgiving break in which we made up for when we came back. During the experiment, worm casting and all-purpose fertilizer resulted in what seems to be best results. However, urea led to significantly wider and larger plants both visually and in the measurements. In set 2, plants shriveled due to continuous 24/7 exposure and despite this, their growth rate was faster than set 1. Dr. Earth yielded poor results and dropped during week 6, with visible mold patches this maybe is because Dr. Earth has a lot of organic matter.



13 Future Considerations:

What changes or improvements would you consider if you repeated the experiment?

In the future, we aim to gather a wider range of data with increased variables and a unique setup. We plan to monitor the plants more closely, ideally 3 times a week, to ensure a more accurate outcome. This approach will allow us to better plan our setups and study our setup to minimize the risk that the plants might die.

14 Conclusions:

Reflection on the season - what did you learn? What's the coolest thing you discovered?

In this season, we have gained insights into documenting an experiment by observing and carefully outlining our setups and procedures. Our surprising discovery is that we can grow plants using predominantly silicon dioxide or a sand-like material.

