

Death by WiFi?, Plant Recovery

**Kentucky State Science and
Engineering Fair 2021**

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Acknowledgements

East Kentucky Science Center

*For hosting the virtual Science Fair

Virtual KYS&F 2021

*For hosting the virtual State Science Fair

Acknowledgements

Mr. Baker

*He registered with STEM Wizard so I could complete my papers. He is my principal.

Mrs. Meade

*She proofread my report and asked me questions. She is my guidance counselor.

Acknowledgements

Mrs. Baker

*Allowed me to use science equipment from her high school biology lab

Mrs. Hubbard

*Allowed me to use a microscope from her high school chemistry lab

Acknowledgements

Mom and Dad

Took me to buy
materials and got
online to read
articles and watch
videos

About My Research Project

My Research Project started after I finished my Science Fair Project last year. I noticed that the plants and seeds that were farthest away from the router at home and at school continued to grow after the Science Fair. The ones that were the closest rotted, molded, or died. But the ones that were 15 feet or more were alive. They weren't healthy because they had yellow leaves and stems. I wondered if there was a way to get the plants that were close to the WiFi signal to rejuvenate.

About My Research Project

These are the questions I asked myself.

-Is there a way to help the unhealthy plants survive?

-What will I need to do to help the plants since WiFi signaled affected them?

-What is my hypothesis?

About My Research Project

I created an iMovie to show you some of my procedures and plant comparisons.

My iMovie is title “2021 virtual kys&ef”. It has been uploaded to www.youtube.com. The video link is:

<https://www.youtube.com/watch?v=pJ3hre8wlhY&t=3s>

Outline

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graph LR; A[Research Question] --- B[Hypothesis]; B --- C[Data]; C --- D[Procedures & Conclusion];
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**Research
Question**

Hypothesis

Data

**Procedures
&
Conclusion**

Research Question

Death by WiFi?, Plant Recovery

This research project answers the question:
Can plants be rejuvenated after they have been affected by WiFi signal?



Hypothesis



Hypothesis

Liquid compost will rejuvenate plants fastest than the other liquids.

Conclusion

Yes, liquid compost will rejuvenate plants fastest than the other liquids.

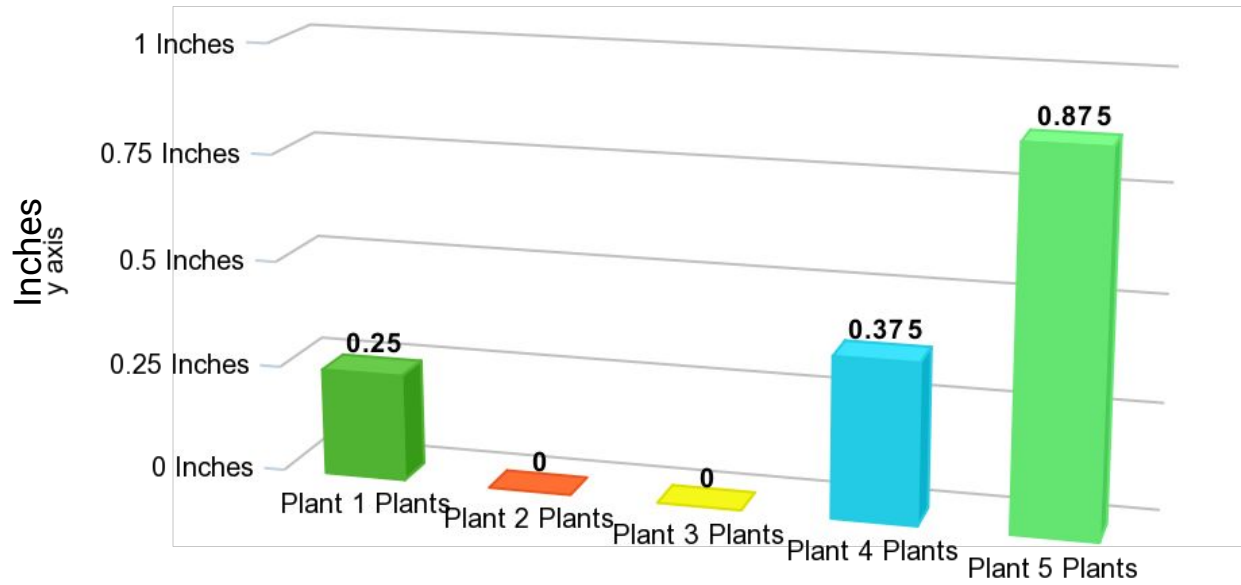
Data

Planet Growth by Router-Trial 1

<u>Plant</u>	<u>Starting Height</u>	<u>Ending Height</u>	<u>Growth</u>
Plant 1	3 inches	3 $\frac{1}{4}$ inches	$\frac{1}{4}$ inches
Plant 2	4 inches	4 inches	0 inches
Plant 3	4 $\frac{1}{4}$ inches	4 $\frac{1}{4}$ inches	0 inch
Plant 4	4 inches	4 $\frac{3}{8}$ inches	$\frac{3}{8}$ inches
Plant 5	4 inches	4 $\frac{7}{8}$ inches	$\frac{7}{8}$ inches

(Away from router)

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Plant Growth- Trial 1



Series 1

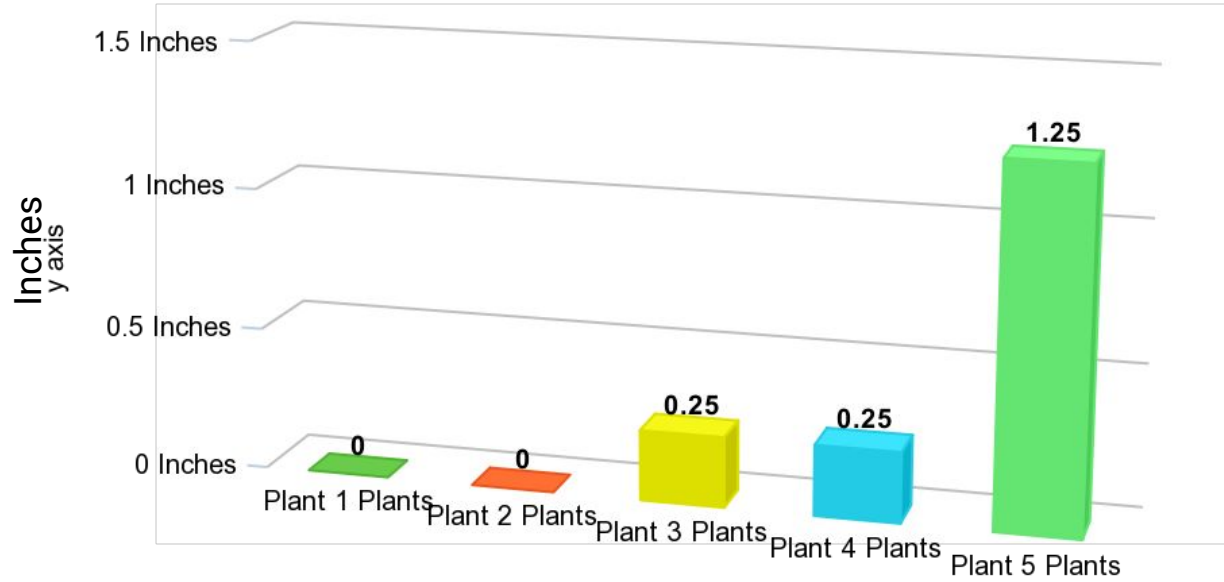
Planet Growth by Router- Trial 2

<u>Plant</u>	<u>Starting Height</u>	<u>Ending Height</u>	<u>Growth</u>
Plant 1	2 ½ inches	2 ½ inches	0 inches
Plant 2	4 inches	4 inches	0 inches
Plant 3	2 ½ inches	2 ¾ inches	¼ inch
Plant 4	2 ½ inches	2 ¾ inches	¼ inch
Plant 5	4 inches	4 ⅞ inches	1 ¼ inches

(Away from route)

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Plant Growth- Trial 2



Series 1

Planet Growth with Liquids

<u>Plant</u>	<u>Starting Height</u>	<u>Ending Height</u>	<u>Growth</u>
Plant 1	3 $\frac{1}{4}$ inches	3 $\frac{1}{4}$ inches	0 inches
Plant 2	4 inches	4 inches	0 inches
Plant 3	4 $\frac{1}{4}$ inches	4 $\frac{1}{4}$ inches	0 inches
Plant 4	4 $\frac{3}{8}$ inches	4 $\frac{3}{8}$ inches	0 inches
Plant 5	4 $\frac{7}{8}$ inches	5 inches	$\frac{1}{8}$ inches

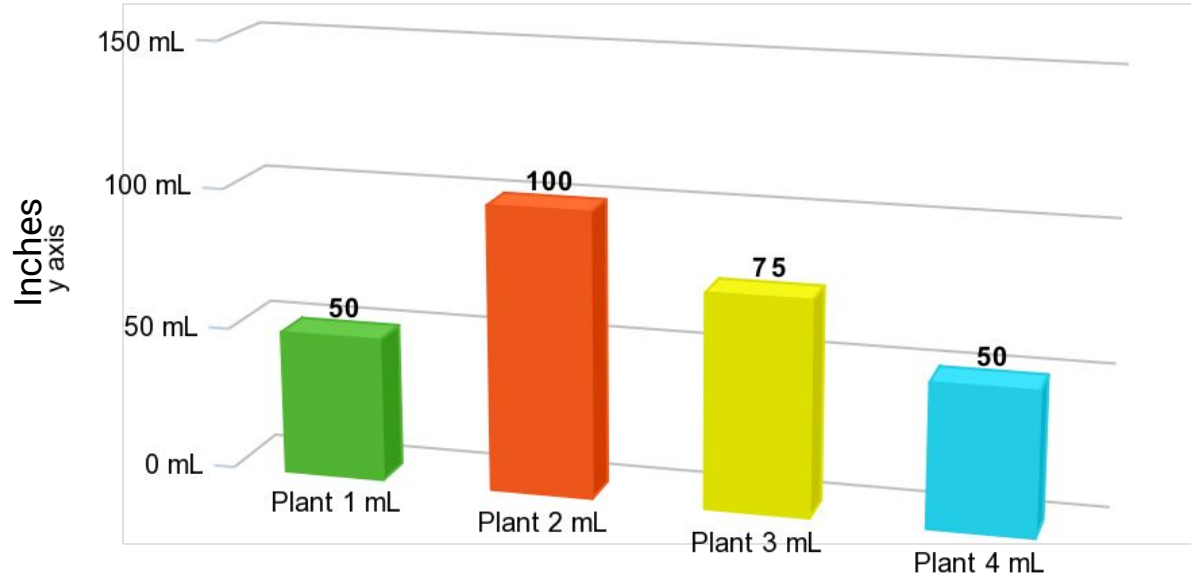
(Away from router)

Planet Rejuvenation with Liquids

<u>Plant</u>	<u>Starting Height</u>	<u>Time to Rejuvenate</u>
Plant 1	3 $\frac{1}{4}$ inches	Didn't rejuvenate
Plant 2	4 inches	Didn't rejuvenate
Plant 3	4 $\frac{1}{4}$ inches	Didn't rejuvenate
Plant 4	4 $\frac{3}{8}$ inches	8 hours

Death by WiFi?, Plant Recovery

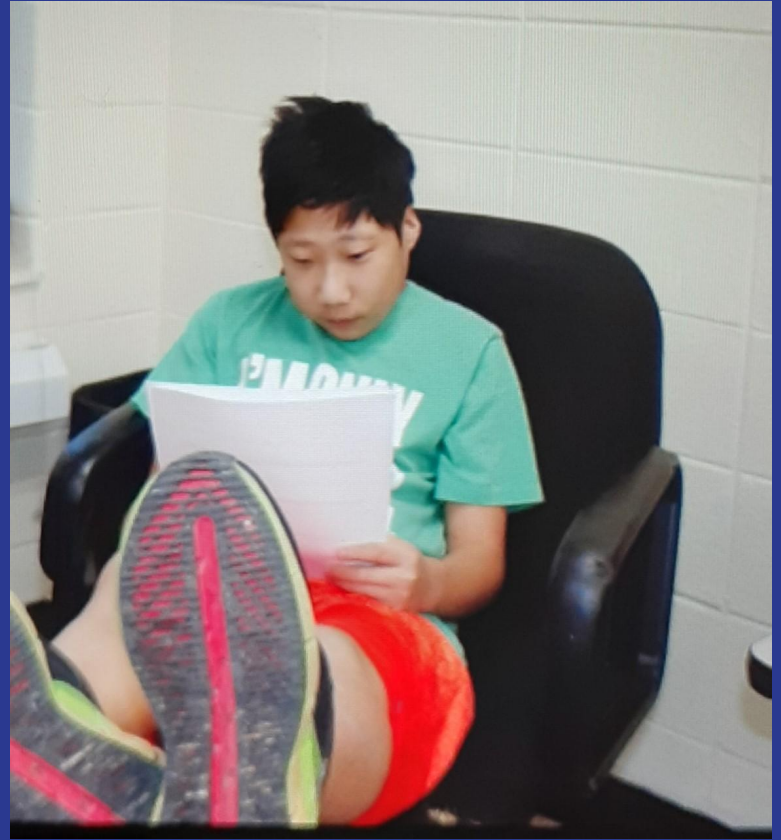
Plant Rejuvenation- Trial 1



Series 1

Procedures

Reading articles about how to take care of pansies, how to rejuvenate plants, and how to make liquid compost.



Watching videos about how to take care of pansies, how to rejuvenate plants, and how to make liquid compost.



I started making my compost bucket. I gathered dried leaves and little sticks. Next, I added kitchen scraps. Then, I added soil. Last, I stirred it together and put a lid on it. I added scraps daily.



I put holes in the bottom of each pot.
This will help the plants drain because Pansies do not like to be too wet.



This will help the roots when the pots are set in the plates with the different liquids.



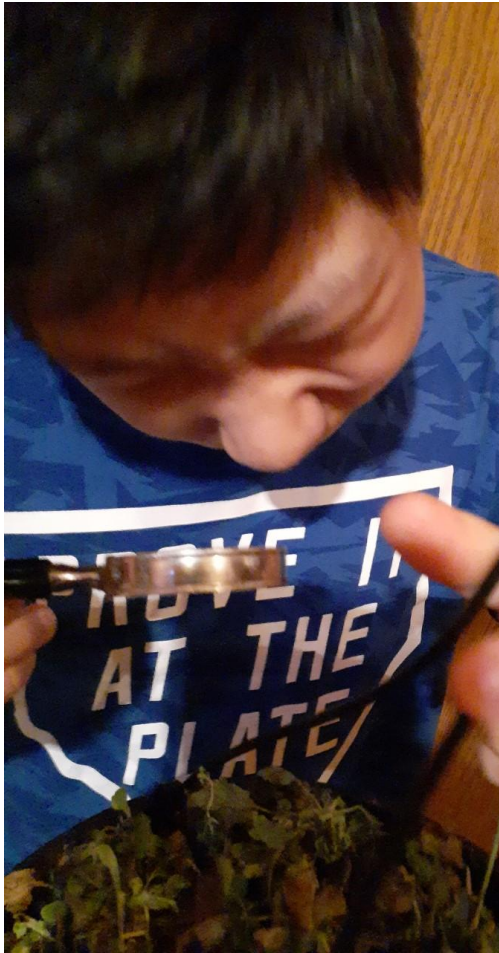
I put equal amounts of
soil in each pot.

I put pansies in each
pot.



I set 4 plants by the router and 1 plant in the other room.



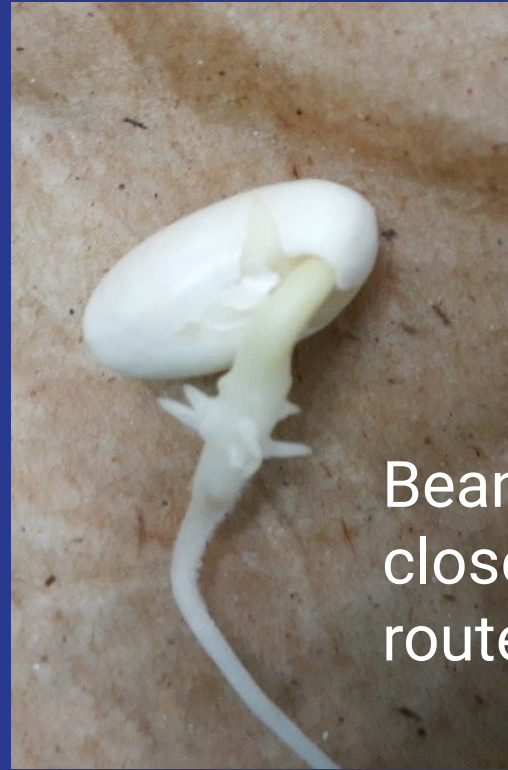


-Daily observations

-Taking measurements



Pea Seed exposed to WiFi Signal. (Closest)



Bean Seed closest to the router.



Pea Sprout exposed to WiFi Signal. (Closest)



— Bean Sprout
closest to the
router.



Pea Sprout farthest from WiFi Signal.



Bean Sprout farthest from the router.



Pea Sprout

Bean Sprout

7 feet from the router

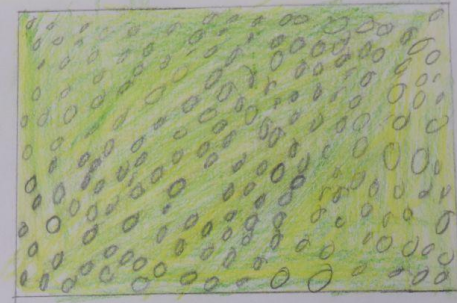


Bean Sprout 17.5 ft
from the router.

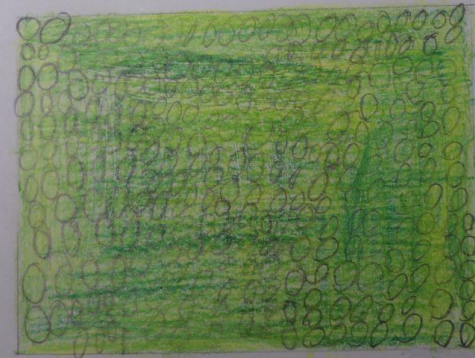
-Plant Cells exposed to WiFi Signal were smaller that Plant Cells not exposed to WiFi Signal.

-Plant Cells exposed to WiFi were scattered.

-Plant Cells exposed to WiFi had a yellow color.



Plant Cells exposed to WiFi Signal at 400x magnification.



Plant Cells not exposed to WiFi Signal 400x magnification.

-Plant Wall exposed to WiFi Signal were shaped like a tear drop.

-Plant Wall exposed to WiFi were scattered.

-Plant Wall exposed to WiFi had a yellow color.



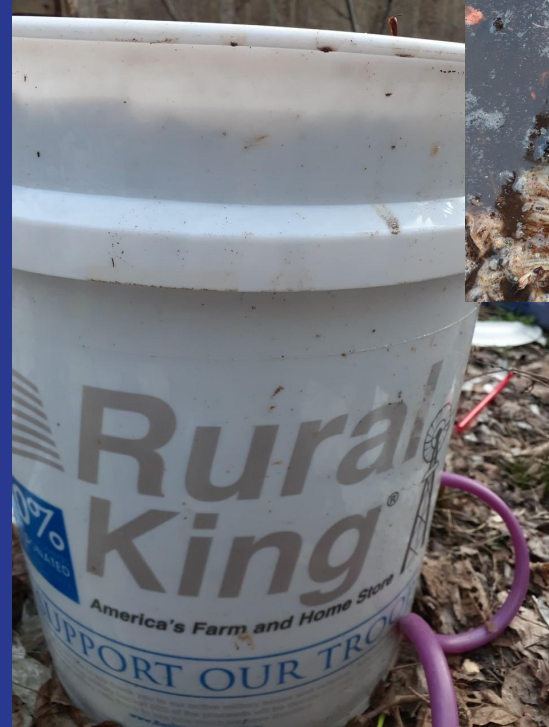
Plant Cell Wall exposed to WiFi Signal 100x magnification.



Plant Cell Wall not exposed to WiFi Signal at 100x magnification.

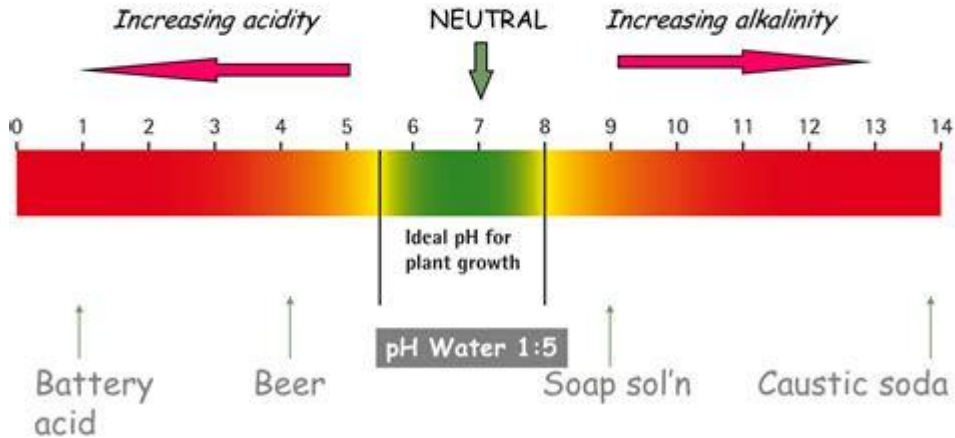
-Compost bucket

-Making liquid
compost



Soil pH - what is it?

- measure of the acidity or alkalinity of a soil
- concentration of hydrogen ions (H^+) in the soil solution



Soil Test

-Using vinegar to test if the soil is acidic

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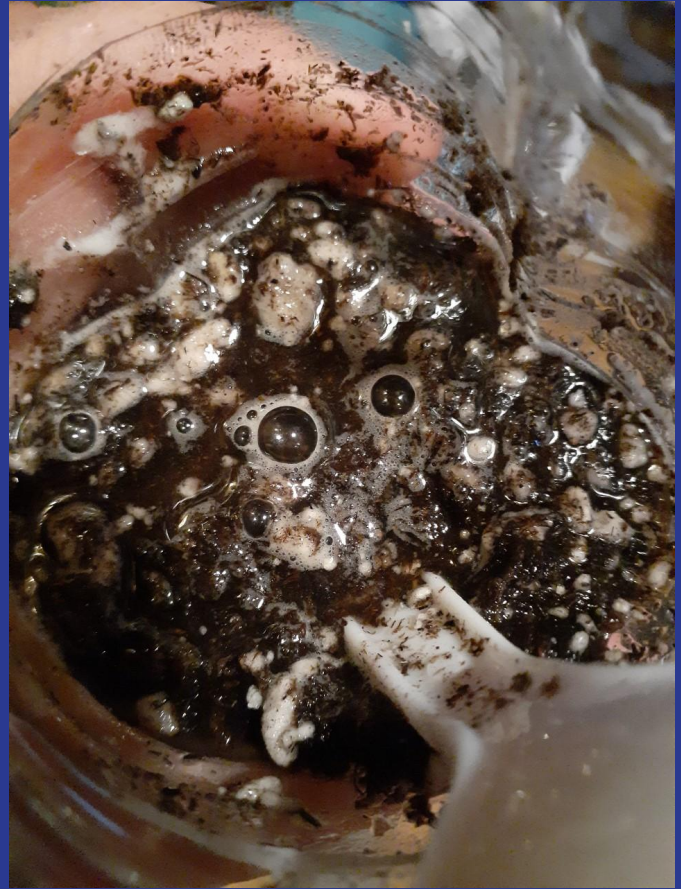
Soil Test

-Using baking soda to test if the soil is acidic



Soil Test

- After baking soda
- Pansies like acidic soil
- Take in nutrients
- Soil was not damaged by WiFi signal



-Putting the aerator together to add oxygen to the liquid compost



- Plant 1: Bottled Water
- Plant 2: Grape Juice
- Plant 3: Purple Gatorade
- Plant 4: Liquid Compost

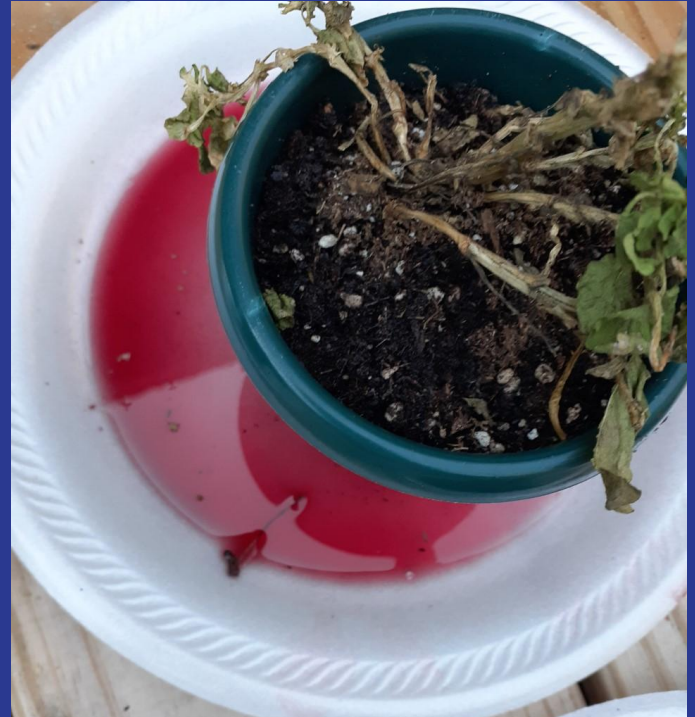


-Plant 4: Liquid Compost with Aerator



Interesting

Plant 2 soaked up the
100% Grape Juice the
fastest.



The leaf from Plant 4 became softer faster than the other plants.



Conclusion

Conclusion

My conclusion to the research question “Can plants be rejuvenated after they have been affected by WiFi signal?” is that my hypothesis is correct. After taking all the plants away from the router the plant that got the liquid compost started to rejuvenate fastest.

Credits

iMovie- Paul-Jacob Asher Estep

Tami Estep, My Mom

Photos- Paul-Jacob Asher Estep

Tami Estep, My Mom