

I Wet My Plants!

By Jacob Peterson

Problem

If you have animals or plants and want to use ice melters for your pavement, what can you trust to do the job right while not hurting the animals and plants? I want to solve this problem with my experiment so people can get the job done with as little harm as possible to their environment. I am going to compare certain ice-melters on plants and see how growth is affected by them. Since harmful chemicals such as salt can get into the soil of plants, I want to know how much of an impact that will have on a plant's growth.

Hypothesis

I think that the normally watered plants will show the most growth, followed by the Safe Paw water mixture, then the Natural Rapport mixture, and finally the salt water mixture. I believe this pattern will occur because I feel like the normally watered plants will do better than the competition since there are no chemicals that can get in the way of growth. Safe Paw will be next due to the fact that it is one hundred percent salt free. Natural Rapport will follow due to the fact that it contains several salts but it won't do worse than salt water since Natural Rapport is claiming to be eco-friendly while pure salt water is obviously not eco-friendly.

Material List

- Twelve bean plant seeds (three per pot)
- Twenty basil plant seeds (five per pot)
- LED grow light panel
- Tap water
- Four gallons of distilled water
- FoxFarm potting soil
- Eight flower pots
- Tablespoon measurer
- Table salt (Morten's table salt)
- Natural Rapport ice melter
- Safe Paw salt free ice melter
- Ruler

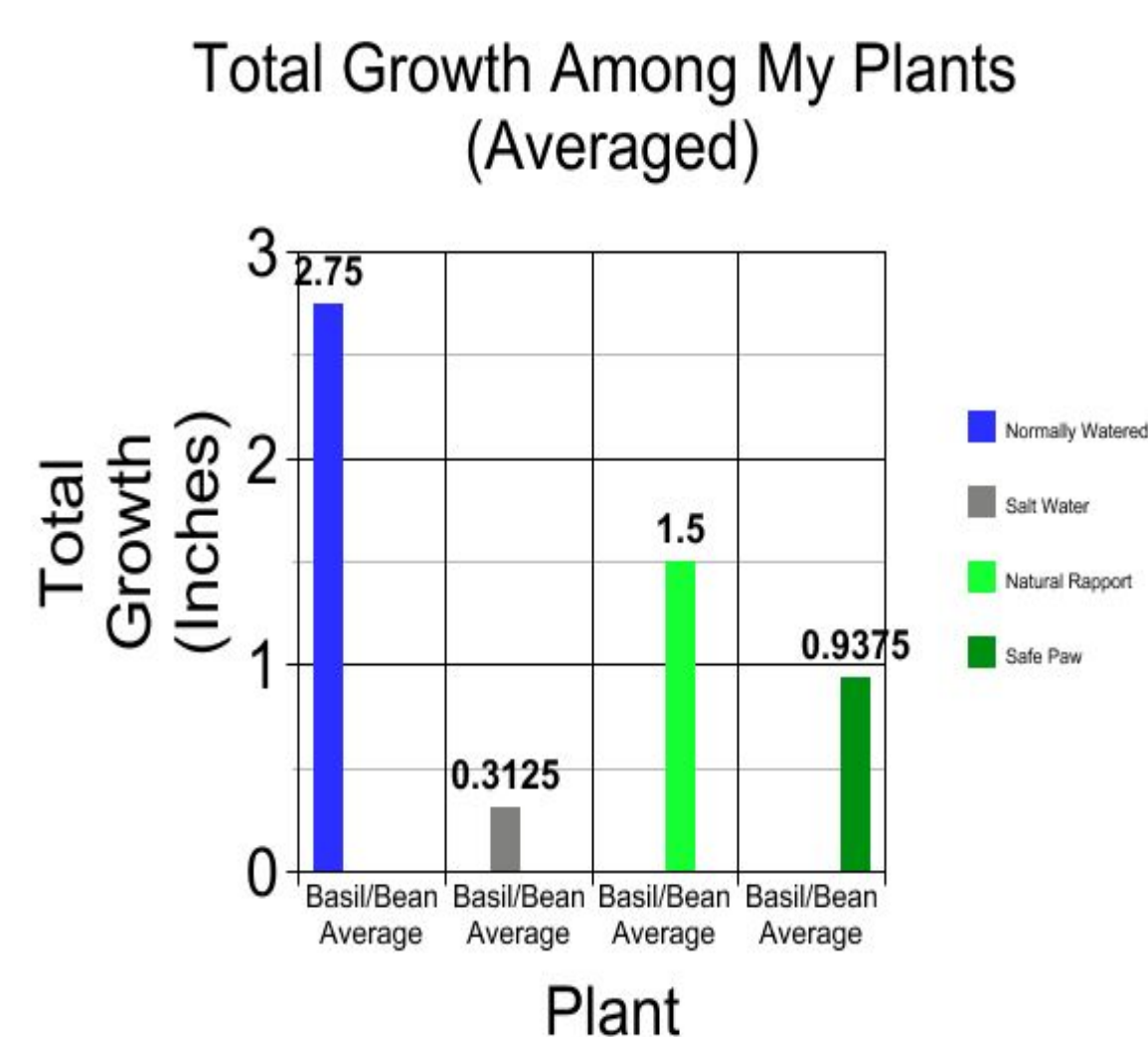
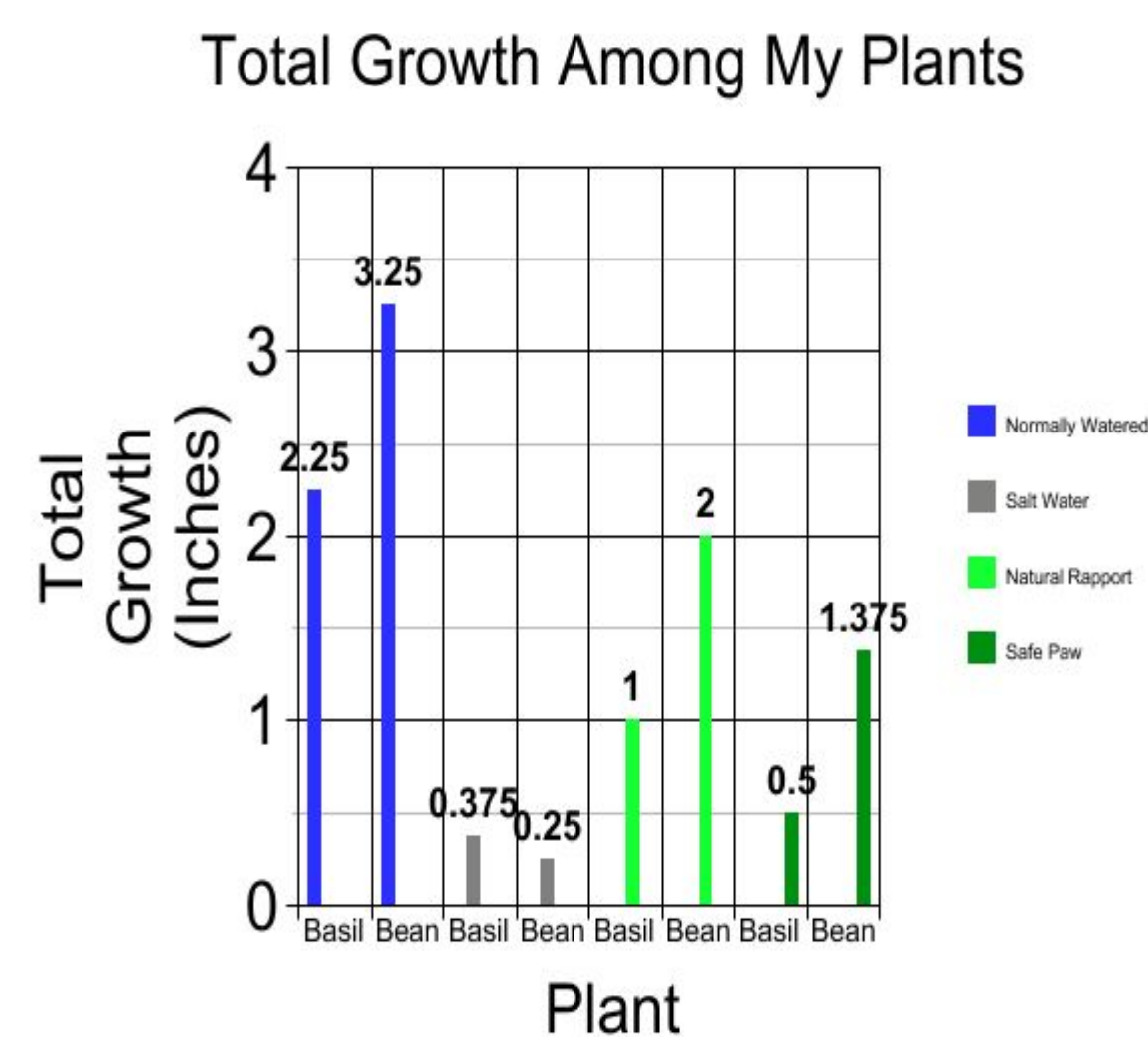
Conclusion

In my data, the normally watered plants triumphed over the other plants. Not only did they show the most growth (by far), but they also appeared much more healthy than the competition. The plants watered with the Natural Rapport mixture grew the second most although they didn't look as healthy. Next was the Safe Paw mixture which did not meet my expectations. I thought that since it did not contain salt, it would do the second best. I was wrong about this and it came in third place overall. As I expected, the salt water plants did the worst by far.

Abstract

Is it worth buying those "eco-friendly" ice melters for your driveway and such? With my experiment, I wanted to find out if "eco-friendly" ice melters would actually perform to their standards. I watered eight plants total, four basil and four bean plants. One of each was watered normally, one was watered with a normal salt water mixture, one was watered with "Natural Rapport," a road salt that claimed to be eco-friendly, and "Safe Paw," which is an ice melter that is one hundred percent salt free. These eight plants were all watered normally for around twenty days until I saw growth in all of them. Then, I watered them every other day with their corresponding water mixture for twenty days. These mixtures consisted of a gallon of water and then two tablespoons mixed in with the water. I expected the normally watered plants to thrive and really stand out from the others. I also expected that the Safe Paw mixture would see the second most growth, followed by the Natural Rapport mixture, and then the salt water. As I expected, the normally watered plants really stood out from the competition. After the normally watered plants, the Natural Rapport mixture saw the second most amount of growth, followed by the Safe Paw mixture, and finally the salt water mixture did the worst. Throughout the twenty days, the bean plants grew as follows: the normally watered plant grew three and a fourth inches, the Natural Rapport plant grew two inches, the Safe Paw plant grew one and three eighths inches, and the salt water grew a fourth of an inch. The basil plants grew as follows: the normally watered plant grew two and a fourth inches, the Natural Rapport plant grew one inch, the Safe Paw plant grew a half of an inch, and the salt water plant grew three eighths of an inch.

Graphs



Data

Bean	Plants	Basil	Plants
Normally Watered	Natural Rapport	Normally Watered	Natural Rapport
Generic Salt	Safe Paw	Generic Salt	Safe Paw
Day One (Inches)			
2.75	3.5	1.75	1.75
3.75	2.875	1.875	1.75
Day Ten (Inches)			
4.25	4.75	3.25	2.5
4.5	3.625	2	2.25
Day One to Ten Growth (Inches)			
1.5	1.25	1.5	0.75
0.75	0.75	0.125	0.5
Day Twenty (Inches)			
6	5.5	4	2.75
4	4.25	2.25	2.25
Day Ten to Twenty Growth (Inches)			
1.75	0.75	0.75	0.25
-0.5	0.625	0.25	0
Total Growth (Inches)			
3.25	2	2.25	1
0.25	1.375	0.975	0.5

Procedure

1. Label your eight pots with "normally watered," "salt water," "Safe Paw," and "Natural Rapport." Label two pots each.
2. Plant five basil seeds per pot in four pots and three bean seeds per pot in the other four pots.
3. Keep each plant under the grow lights at sixteen hours on, eight hours off. The plants should be approximately three feet under your grow light panel.
4. Water with tap water every other day at 8 PM accordingly to the plants needs (i.e. if a plant's soil feels crumbly and light or very moist and heavy that is not a healthy amount of water. Water so that the plant has some weight and the soil is moist).
5. Repeat steps three and four for twenty days. At this point, every plant should be growing at a steady rate. Record how tall the plant is from the soil to its highest point. This marks your starting point for the main part of the experiment.
6. Mix the salt with your water. For the four plants of each kind, three will be grown with an additive from then on and one will continue to be grown normally. For each plant that you are using an additive, mix two tablespoons of that respective salt and/or ice melter into one of your gallons of distilled water and water as you would in step 4. You should have four gallons of water, one normal, one with salt water, one with the Natural Rapport, and one with the Safe Paw.
7. Continue this same cycle, and on day ten and twenty of watering the plants with ice melter/salt, measure their length from the soil to the plant's highest point.
8. Evaluate your data and see which plants grew the most by comparing the current length to the length when you started watering them with the additives.

Day One of Salts



Day Ten of Salts



Day Twenty of Salts



Plant Key

1a	1b	2a	2b
1c	1d	2c	2d

1 = Bean 2 = Basil
A = Normally Watered b = Natural Rapport
C = Generic Salt d = Safe Paw