

# An Investigation of the Effects of Petroleum Products and Salt on the Growth of Lettuce Plants

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## ABSTRACT

This project determines to a certain extent, how different soil contaminants affect the growth of roadside plants. Using the materials listed, I created and designed an experiment to simulate exactly this. It is my belief that of all the chosen contaminants, the rock salt will have the most adverse effect on the growth, and that my collected data should support this. I used a basic table chart to report and show my data collected, and to make it easy to understand. Unfortunately for me, my last three days worth of data was affected by winter storm Charlotte, and I was unable to get any pictures of the grown plants after all of my data was collected. Thankfully, I was able to record some growth in four of the six pots,.

## INTRODUCTION

The purpose of this project is to determine the effect that different soil contaminants have on the growth of plant life. In this case, I used old motor oil, a common contaminant in heavily populated areas, and rock salt, which is commonly applied to melt ice during the winter. Every day, contaminants are leaching into our soils, having impacts on the plant life around us. As these contaminants leach into the soil, they begin to create health problems for the plants trying to grow in that area. If these roadside plants begin to die, we lose the anchors for the soils that those plants are living in. When strong winds blow in these areas, if there is nothing holding the soil in place, it begins to blow all over the place, creating dust clouds that can cover the roads. This creates possible safety hazards, and could increase injuries and deaths from car crashes.

## HYPOTHESIS

Seeds planted with salt-contaminated soil will be the most heavily impacted because the salt will dry out the soil quicker than either the control or oil treated pots and inhibit the plant from taking in enough water to grow.

## MATERIALS AND METHODS

**Materials List:**  
 Plastic planting pots (x6)  
 Black-Seeded Simpson Lettuce seeds  
 Rock Salt (2 Cups)  
 Motor Oil (2 cups)  
 Potting Soil  
 12' ruler

**Procedure:**  
 First, I filled the six pots with potting soil and labelled them: A, B, C, D, E, and F. In pots C and D I mixed in rocks salt (1 cup each) until fairly dispersed in the soil. I then mixed 1 cup motor oil into both pots E and F. Once I mixed these into their separate pots with potting soil, I planted the seeds and allowed the plants to grow. I monitored their height and outward appearance of health over a period of ten days and determined which contaminant appeared to have the most impact on plant growth when compared to the control.

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Pot A Control	0"	0"	0"	0"	0"	.75"	1.5"
Pot B Control	0"	0"	0"	0"	0"	.75"	1.25"
Pot C Salt	0"	0"	0"	0"	0"	0"	0"
Pot D Salt	0"	0"	0"	0"	0"	0"	0"
Pot E Oil	0"	0"	0"	0"	0"	0"	.25"
Pot F Oil	0"	0"	0"	0"	0"	0"	.25"

## RESULTS

I should mention before the results, that my data was affected by Winter Storm Charlotte and I was only able to gather 7 days worth of data. Now, the data I was able to gather showed during the 7 day period, growth totals of 1.5" (pot A), 1.25" (pot B), 0" (pots C and D), and 0.25" (pots E and F). As pots A, B, E, and F were growing, they showed healthy growth and no signs of health problems. Meanwhile, a white, crystalline crust formed over the tops of pots C and D, most likely because of the salt content.

## CONCLUSIONS

My results supported my hypothesis, the seeds planted in the salt-contaminated soil will be the most heavily impacted because the salt will dry out the soil quicker than the control or oil treated pots, and will inhibit the growth of the plant.



## REFERENCES

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