

Research question: What will happen if we simulate a flood, drought, and average rainfall on onions and radishes?

March 4th, 2024

Experimental design: In our experiment there will be two types of plants that we will be working with to get the best possible results. We will be working with radishes and onions. Each of them needs to have their own specific requirements that will be needed to grow, even though we will be putting them through several conditions to see how they react. These facts about radishes will help us with our experiment about giving radishes droughts, floods, and normal weather. Radishes, on average, need .8 cups of water per 9 days, Radishes are also one of the most water rich vegetables meaning they need a lot of water. A pint everyday can cause overwatering .4 to 1.29 inches of water is considered a drought so about .7 cups would be a moderate drought. Radishes should be planted about 1 inch apart and there should be 4-6 radish seeds. Radishes prefer fertile, deep, well-drained soils. They need to plant seeds 1/2-1 inch deep. Radishes need 6 hours of sunlight per day. Radishes grow best in sandy soil. Radishes grow best in sandy soil. Drought can cause roots to develop bad flavor and tough texture. We need this information to successfully grow radishes. These facts are to help with the germination of our onions. Onions need a lot of care and to start that care you need to first, prepare a planting bed, by adding a fertilizer and amend fertilizer and amend soil as needed with will composted organic matter. Onion bulbs are produced by sowing seeds in a dense pattern in early summer and then being harvested in autumn. Next, when the bulbs are still small. Lastly, onions need an inch of water a week to survive, and 7-14 days before harvesting stop watering the onion. To conclude all we have stated, onions need a lot of care in order for this experiment to work.

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Prediction: We have some predictions of what will happen when we “flood” a plant, put a plant into a “drought” and then put a plant through its normal plant experience where it gets what it needs. If we give a plant a normal amount of water it will grow how a normal plant does and it will be healthy and will survive. If we give a plant a small amount of water, like in a drought, it will probably die and wilt. When it is overwatered in a flood, we think the plant will drown and die. A plant will grow a normal amount and be an average plant when it gets a normal amount of water. A plant will grow, probably slightly smaller, and die with a small amount of water if it continues to get a small amount of water for a long period of time such as if a plant would be going through an extreme drought. If a flood happens, we predict it will kill the plants or hurt them. The plants will

March 8:	0	0	0	0	0	0	0	0	0	0	0	0	0	Water MM
March 8:	0	0	0	0	0	0	0	0	0	0	0	0	0	Height CM
March 11:	25	25	15	15	40	40	25	25	15	15	40	40	40	Water MM
March 11:	7.9	4.3	6.7	9.1	6.1	1.8	0	0	0	0	0	0	0	Height CM
March 13:	0	0	0	0	0	0	0	0	0	0	0	0	0	Water MM
March 13:	10.6	11	11.6	14.2	12.6	10.3	1.6	.8	1	.7	1.6	.2	1.6	Height CM
March 15:	25	25	0	0	40	40	25	25	0	0	40	40	40	Water MM
March 15:	12.2	10	11.8	12.3	12.4	13.4	3.8	1.7	2.4	6	2.3	1	2.3	Height CM
March 18:	0	0	15	15	0	0	0	0	15	15	0	0	0	Water MM
March 18:	14.5	10	13	9.4	11.8	7.9	4.7	4.6	4.7	7.8	3.7	3.1	3.1	Height CM
March 19:	25	25	0	0	40	40	25	25	0	0	40	40	40	Water MM
March 19:	14	11.9	13.7	11.9	13.7	8	7.1	5.4	5.8	3.2	5.9	4.4	4.4	Height CM
March 22:	25	25	0	0	40	40	25	25	0	0	40	40	40	Water MM
March 22:	14.6	11.2	7.7	9.5	13.7	7.5	7.4	6.61	5.9	5.6	7.3	5.5	5.5	Height CM
March 25:	0	0	15	15	0	0	0	0	15	15	0	0	0	Water MM
April 1st:	8.2	7.6	3.2	7	14.8	14.6	8.2	6.3	1.5	3	9.3	7	7	Height CM

Entry 3, 3-8-24, First, the drought somehow bigger than all the others, radish drought 2, we then watered all of them, and changed the drought to 15 mm, per week.

Entry 4, 3-15-24, First, we grabbed out plants, and then we watered them. Next, we went and grabbed the water for the control plant, and the flood plant. After we finished watering, we started to measure, and after we put down the information.

Entry 5, 3-18-24, First, we grabbed out plants, and noticed most of our droughts were dead. After that observation, we counted all the heights and calculated them. While I put water in them, we accidently put 10 mm of drought, so tomorrow we will have 5 mm tomorrow.

Entry 6, 3-22-24, First, we got out our plants which were lying in the sun, and when we looked over them, most of the drought ones were dead, or wilting. We then watered and measured them, some of them had like 10! After that, we put them back and then we finished.

Entry 7, 3-25-24, First we grabbed water, and we only watered the drought, 15 MM, and most of them look quite healthy, but the droughts are DEAD, and the floods are thriving.
CONCLUSION;

In our experiment things did not turn out the way that we had expected. When we had originally thought that the droughts were going to do the worst, then the floods, and then the controls. Instead though the droughts were the worst but then the controls did not do the best, so overall the floods did the best out of all of them. We think that this happened because the school had a problem with the facilities and we could not water them for over a week. This caused the droughts to dry out even more and the controls to start to dry out, the floods which had been almost constantly wet had now reached a good amount of water for them and started to recover from their previous almost dying state. The data supports our claim because in our graph it shows that droughts went down the whole time, the control went up and down, and the floods did very well overall. This does not support our old claim, where the controls did the best, then the floods, and lastly the droughts, but it does support our new one where we said that the floods did the best, then the controls, and lastly the droughts. Future experiments that could include redoing this without the interruption of the school problems, another one would be doing this on a larger scale with more data, and doing the project for a longer

amount of time until we got lots of data. In conclusion, through things such as the school having problems, having the wrong idea to begin with, and learning new things about plants we have gained knowledge and experience that will be useful later in life.