

FEED ME !!



Joshua's Log Book

RESEARCH SOURCES:

Plants and How they Grow by Bo Tonist

"Growing Good Vegetables" *Agriculture Digest* April, 05

Botany/Detective LePlant - Help Detective LePlant and his partners Bud and Sprout unlock the amazing mysteries of plants.

<http://www.urbanext.uiuc.edu/gpe>

California Native Plant Society Kids' Page - Contains easy to understand information about plants.

<http://www.cnps.org/kidstuff/pollin.htm>

QUESTION

How does fertilizer affect the growth of a tomato plant?

HYPOTHESIS

"If I add fertilizer to the soil of potted tomato plants, then the plants will grow taller because fertilizer has nutrients in it that plants need."

PROCEDURE

1. Purchase 6 healthy tomato plants of approximately the same size in the same sized pot.
2. Prepare 400 ml of spring water and 400 ml of spring water with 5 ml
3. Label three of the plants "Spring Water 1, 2, 3" and three of the plants "Fertilized Water 1, 2, 3".
4. Place all 6 pots in a location that will receive adequate light and sun.
5. Use a centimeter ruler to measure and record the height of each tomato plant on a data chart. (You may want to take pictures each time you measure the plants.)
6. Water the 3 plants labeled "Spring Water" with 100 ml of spring water and water the 3 plants labeled "Fertilized Water" with 100 ml of the spring water with fertilizer.
7. Repeat steps 5 and 6 every other day.

VARIABLES

Independent variable fertilizer

Dependent variable growth of the plants

Controlled variables the same sized pot, the same amount of soil,
the same amount spring water, the same amount of sunlight, and
exposed to the same temperature.

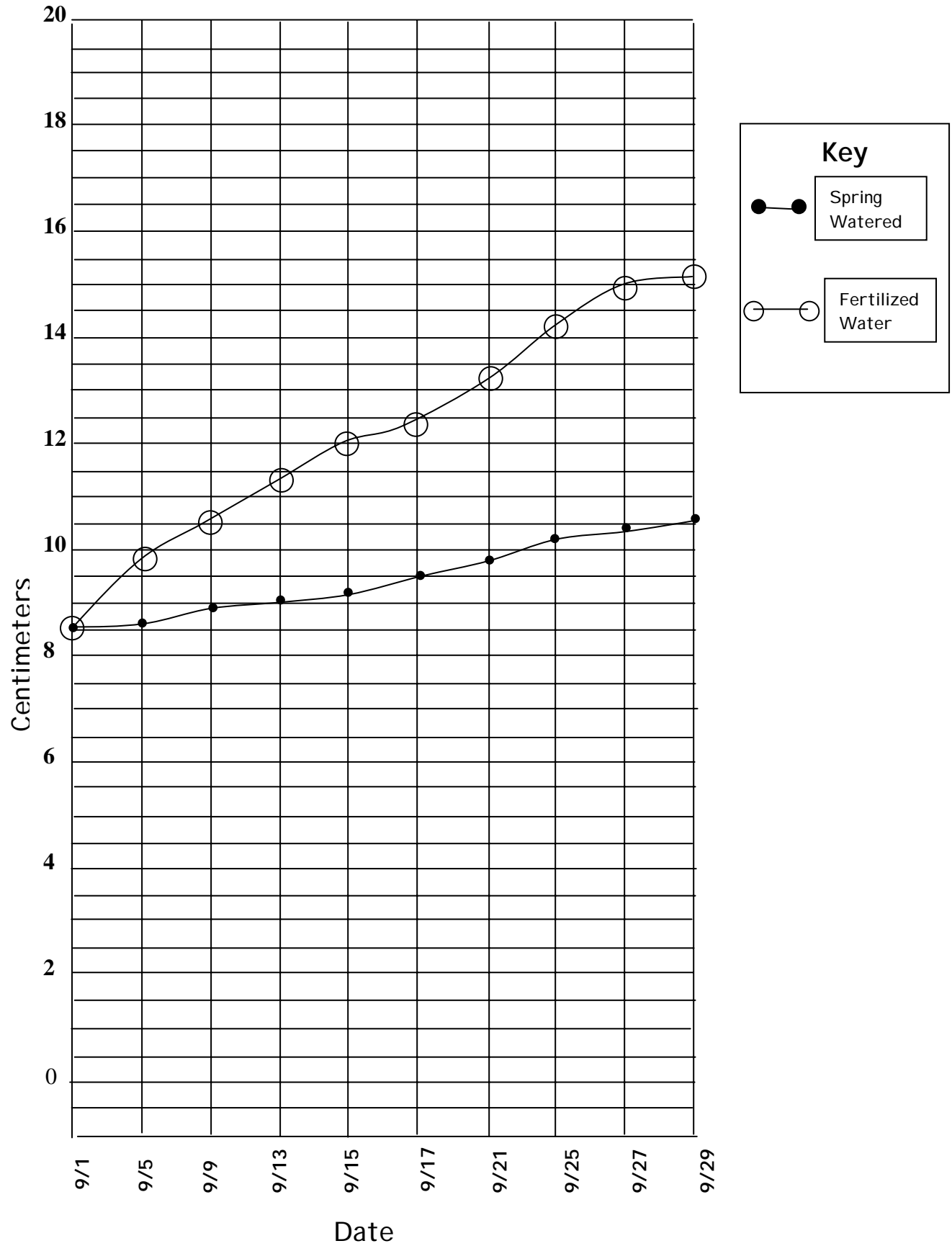
MATERIALS

6 tomato plants of the same size and health in pots with 0.5 mg
of soil
5 ml liquid fertilizer
100 ml measuring cup
Centimeter Ruler
400 ml spring water
400 ml spring water with 5ml of liquid fertilizer mixed in

DATA

Height of Plants in Centimeters													
	Date & time	Date & time	Date & time	Date & time	Date & time	Date & time	Date & time	Date & time	Date & time	Date & time			
	<i>September 1, 3:30 pm</i>	<i>September 5, 3:33 pm</i>	<i>September 9, 3:30 pm</i>	<i>September 13, 3:34 pm</i>	<i>September 15, 3:35 pm</i>	<i>September 17, 3:30 pm</i>	<i>September 21, 3:45 pm</i>	<i>September 25, 3:45 pm</i>	<i>September 27, 3:40 pm</i>	<i>September 29, 3:30 pm</i>	Mean height	Range of heights	Average height of groups
Spring Water 1	9.0 cm	9.2 cm	9.4 cm	9.6 cm	9.7 cm	10.0 cm	10.5 cm	11.0 cm	11.2 cm	11.4 cm	10.0 cm	2.4 cm	10.4 cm
Spring Water 2	9.5 cm	9.7 cm	10.0 cm	10.2 cm	10.3 cm	10.5 cm	10.7 cm	11.1 cm	11.3 cm	11.5 cm	10.4 cm	2.0 cm	
Spring Water 3	10.0 cm	10.2 cm	10.4 cm	10.5 cm	10.7 cm	10.9 cm	11.1 cm	11.5 cm	11.6 cm	11.8 cm	10.8 cm	1.8 cm	
Mean Height of Spring Watered Plants 1, 2, 3	9.5 cm	9.7 cm	9.9 cm	10.1 cm	10.2 cm	10.5 cm	10.8 cm	11.2 cm	11.4 cm	11.6 cm			
Fertilized Water 1	9.0 cm	9.3 cm	9.9 cm	10.8 cm	11.5 cm	12.0 cm	12.9 cm	13.9 cm	14.4 cm	14.9 cm	11.5 cm	5.9 cm	12.3 cm
Fertilized Water 2	9.5 cm	9.9 cm	10.5 cm	11.4 cm	12.0 cm	12.3 cm	13.2 cm	14.4 cm	14.9 cm	15.3 cm	13.0 cm	5.8 cm	
Fertilized Water 3	10.0 cm	10.4 cm	11.0 cm	11.7 cm	12.5 cm	12.9 cm	13.8 cm	14.8 cm	15.2 cm	15.5 cm	12.5 cm	5.5 cm	
Mean Height of Fertilized Watered Plants 1, 2, 3	9.5 cm	9.9 cm	10.5 cm	11.3 cm	12.0 cm	12.4 cm	13.3 cm	14.3 cm	14.8 cm	15.2 cm			

Rate of Growth of Spring Watered and Fertilized Watered Plants



RESULTS

We released 400 ml of spring water into 3 potted tomato plants and 400ml of fertilized spring water into 3 potted tomato plants to measure the effect of fertilizer on plant growth. We placed all 6 tomato plants in the same location to receive adequate sunlight and watered them every other day. We measured plant height initially and after each watering. After 10 waterings, the average height of the 3 plants that received spring water was 10.4 cm. After 10 waterings, the average height of the 3 plants that received fertilized spring water was 12.3 cm. There was a mean difference of 1.9 cm. in height between the fertilized tomato plants and the non-fertilized plants. A relationship between fertilized water and plant growth was established.

CONCLUSION

My hypothesis was supported by the results of my investigation. I thought that tomato plants watered with fertilized water would grow taller than those that were watered with unfertilized water. I found that after one month, the average height of fertilized plants was 12.3 cm. In comparison, the average height of the unfertilized plants was 10.4 cm, a difference of 1.9 cm. Since all the plants were approximately the same height when the investigation began, I can infer that the fertilizer was the cause of the difference in their heights. Next, I would like to investigate different brands of fertilizer to determine which brand causes tomato plants to grow best.