

Unbelievable proven
already that in at
least 300



UnbeLEAFable plant foods. BotanyExperimental

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Chicago, IL 60610Grade 8?? My testable question is, which plant food is quickest, and most efficient when growing plants? I believe that Miracle-Gro is the best kind of plant food when growing plants efficiently because it is rated #1 in customer satisfaction.

I chose to do this project because I want to learn more about how to help the growth of trees and plants. There are 3 trillion trees in the world, but study has shown that every minute, at least 55, 600 trees are being cut down each minute, 80, 064, 000 trees are being cut down each day, Which means that 3. 5 to 7 billion trees are cut down each year. Scientist have proven already that in at least 300 years, the earth will run out of trees unless we do something about it. One of the ways people can help save trees is to save paper, or plant trees, and the “ Plant a tree” part of it really struck me.

A tree takes a minimum of 10-15 years to grow, and a maximum of 20-30 years. It would take a lot of time for enough trees to grow to stop a tree shortage. So I decided to do an experiment with plant food to see if plant food could help speed up the growth of a tree. The closest plant that resembles a tree, is a flower. Both have roots, need the same resources to grow, and have leaves.

(although flowers clearly don't have as many as trees.) that's why I decided to substitute trees with flowers, because I cant wait years for a tree to grow.

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The flower I chose to substitute, is a morning glory because morning glories are one of the fastest growing flowers. The three different types of plant food I'm using are Miracle-gro, Vigoro, and Osmocote. All three were listed as the top customer satisfaction. I chose to go with the highest in customer satisfaction because it shows that all three possibly could work very well.

<https://www.homedepot.com/b/Outdoors-Garden-Center-Plant-Care-Plant-Food-Fertilizer-Plant-Flower-Fertilizer/N-5yc1vZc8rz> <https://www.domyownpestcontrol.com/miraclegro-water-soluble-all-purpose-plant-food-p-4019.html> <https://www.domyownpestcontrol.com/osmocote-plus-outdoor-and-indoor-smartrelease-plant-food-p-16066.html> https://www.homedepot.com/b/Outdoors-Garden-Center-Lawn-Care-Lawn-Fertilizers/Vigoro/N-5yc1vZbx6bZ1kt?cm_mmc=SEM%7cTHD%7cG%7c0%7cG-BASE-BT3-Vigoro-D28O-OutdoorGarden%7c=Cj0KCQiAl8rQBRDrARIsAEW_To_XSCZlQA1M5uTQNFaiByn4DrcY4m-Rvx8e8e4ZAUvaEoIW8_DB5zwaAu5GEALw_wcB=aw

https://www.homedepot.com/b/Outdoors-Garden-Center-Lawn-Care-Lawn-Fertilizers/Vigoro/N-5yc1vZbx6bZ1kt?cm_mmc=SEM%7cTHD%7cG%7c0%7cG-BASE-BT3-Vigoro-D28O-OutdoorGarden%7c=Cj0KCQiAl8rQBRDrARIsAEW_To_XSCZlQA1M5uTQNFaiByn4DrcY4m-Rvx8e8e4ZAUvaEoIW8_DB5zwaAu5GEALw_wcB=aw

https://www.homedepot.com/b/Outdoors-Garden-Center-Lawn-Care-Lawn-Fertilizers/Vigoro/N-5yc1vZbx6bZ1kt?cm_mmc=SEM%7cTHD%7cG%7c0%7cG-BASE-BT3-Vigoro-D28O-OutdoorGarden%7c=Cj0KCQiAl8rQBRDrARIsAEW_To_XSCZlQA1M5uTQNFaiByn4DrcY4m-Rvx8e8e4ZAUvaEoIW8_DB5zwaAu5GEALw_wcB=aw

<http://gardenclub.homedepot.com/vigoro/> Miracle gro plant food ingredients: Total Nitrogen - 24% ..

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3. 5% ammoniacal nitrogen ..

...20. 5% urea nitrogen Available Phosphate - 8% Soluble Potash - 16% Boron - 0.02%, Copper - 0.07%, Iron - 0.15%, Manganese - 0.

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05%, Molybdenum - 0.0005%, Zinc - 0.06% Osmocote plant food

ingredients: Total Nitrogen - 15% Available Phosphate - 9% Soluble Potash -

12% Magnesium - 1.3% Vigoro plant food ingredients: Total Nitrogen

(N)

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. . . .

. 24.

0% 4.0% Ammoniacal Nitrogen 1.0% Nitrate Nitrogen 19.0% Urea Nitrogen

Available Phosphate (P2O5) . .

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8.0% Soluble Potash (K2O) . . .

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. . . . 16.0% Sulfur (S) .

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. . . . 3.0% 3.0% Combined Sulfur (S) Boron (B) .

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0. 02% Copper (Cu)

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0. 07% 0. 07% Water Soluble Copper (Cu) Iron (Fe) . .

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. 0. 15% 0. 15% Chelated Iron (Fe) Manganese (Mn) .

...

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..... 0.

05% 0. 05% Chelated Manganese (Mn) Molybdenum (Mo) . .

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..... 0. 0005% Zinc (Zn).

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... 0.06% 0.

06% Water Soluble Zinc (Zn) Go to a gardening store or depot, and purchase 3 small identical pots, soil, morning glory seeds, and three different plant foods. (Miracle-gro, Osmocote, and vigoro.) Return to testing space and set up a lab space near sunlight. Make sure each flower pot has an even amount of sunlight. Fill each pot with an equal amount of soil. Plant one seed in each pot. You should bury the seed at least an inch underneath the soil. Morning glories need a lot of water, and make sure each pot has an even amount of watering. Water and carefully collect data for a week.

For each time you collect data, make sure you add plant food once every two days. Days of testing

Pot 1: Miracle-gro	Pot 2: Osmocote	Pot 3: Vigoro
Day 1	No sprouts	No sprouts
Day 2	No sprouts	No sprouts
Day 3	Small sprouts	Small sprouts
Day 4	Small sprouts, but plant appears to be growing slower	Small sprouts have grown a few more baby leaves
Day 5	Plant did not make any progress	Plant is growing rapidly
Day 6	Almost grown!	Almost grown!

Not fully grown! I wanted to find out which plant food is the best at helping plants grow. I wanted to know this because it may help when growing plants, such as in the future, there may not be enough trees and we might need help growing more efficiently. (I hope this will not be a problem in the future). I

hypothesized that out of the three plant foods I picked, miracle-gro, vigoro, and osmocote, Miracle-gro would be the best plant food. I tested it by

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planting three plant seeds, morning glories, in three separate pots, and then I assigned the three plant foods to one of the three pots.

Through the experiment, I noticed that in the first few days, none of the plant pots showed any kind of progress. But through the rest of the week, I noticed that miracle grow and osmocote were growing faster than vigoro. By the end of the week, I noticed that miracle gro and osmocote were the plant foods that had grown the fastest, and vigoro had not grown as fast. This means my hypothesis was halfway correct, because miracle-gro did grow fast, but it grew equally as fast as osmocote, leaving them at a tie. I believe my test was fair, because I made sure that each pot got an even amount of sunlight, and an even amount of water and plant food.

Things I could do better if i ever did this experiment again, would be to choose more variety when picking out plant foods, so the test could be more accurate and have more variety, This data I have collected can be used in a real life situation because it has to do with botanical science. This could help further research of growing faster plants, such as trees. Because trees take a long time to grow and 3.

5 to 7 billion trees are being cut down yearly, and in the future there might be a point where we need to grow trees faster. I hope this time will not come, but it could help with the research in botanical science.