



CALIFORNIA STATE SCIENCE FAIR 2017 PROJECT SUMMARY

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| Name(s) Julianna M. Ramirez | Project Number J2316 |
| Project Title Black Gold: Study of Worm Castings as Fertilizer | |
| Objectives/Goals The purpose of my experiment was to see if worm castings could be an effective non-chemical fertilizer that is safe to use around children and pets. I wanted to compare different mixtures of worm castings to a purchased fertilizer. I learned from my research that nitrogen and potassium are important nutrients for plants so to determine the best soil, I measured the nitrogen and potassium levels in each sample. | |
| Abstract Methods/Materials There will be 160 worms from Uncle Jim's Worm Farm in each of the boxes, I will feed them every other day. My experiment will test levels of nitrogen and potassium in the soil from the worms and the other two soils. Materials: Uncle Jim's worms, HoldAll Soil Test Kit, with Nitrogen and Potassium tests, (6) Plastic rectangular boxes (23cm x 15cm x 7cm), Care Fresh Complete Natural Paper Bedding, coconut husk (Coir), table scraps, coffee grounds, and barley. | |
| Results The nitrogen levels were mostly very low and low, the potassium levels were medium to high. The coffee castings had the highest levels of nitrogen and potassium. The next sample was the table scraps and coffee grounds which had the same level of nitrogen as coffee ground castings but a little lower level of potassium. Miracle-Gro had medium levels of nitrogen and lowest level of potassium. Table scrap sample had very low levels of nitrogen and low levels of potassium. Final the dirt from my backyard had very low level of nitrogen and medium level of potassium. | |
| Conclusions/Discussion My results rejected my hypothesis since I thought that the table scrap and coffee grounds mixed together would be the best. I did not predict that coffee grounds alone would be the best since in the beginning the coffee grounds were very dry and the worms were having a hard time and not thriving. I think the reason my hypothesis was not correct was due to the fact that originally those worms were in barley, which was very hard for them and killed many of the worms so they basically had to start over with less worm than coffee grounds and table scraps. I have learned that if I want to grow plants using worm castings coffee grounds would be the best type of castings to use. If I were to do this experiment again I would have use the dirt from my backyard to add in with all of my castings, then tested the soil for nitrogen and potassium levels. | |
| Summary Statement My project studied if I feed different groups of worms table scraps, coffee grounds, and table scraps and coffee grounds combined which group would produce castings with the highest levels of nitrogen and potassium. | |
| Help Received | |