CALIFORNIA SCIENCE & ENGINEERING FAIR
2019 PROJECT SUMMARY

Name(s)

Mariko McCabe

Project Number

J1817

Project Title

How Do the Shells and Spines of Red Sea Urchin Affect Plant Health?

Abstract

Objectives

To find a way to utilize the commonly wasted shells and spines of Red Sea Urchin that have potential to become a zero waste resource.

Methods

Mixed 340 grams of crushed Red Sea Urchin into soil. Filled four plastic 12 inch deep and 15 inch diameter pots with soil that has mixed in shells and spines. Filled four with untouched soil. Mixed in 700mL of water into each pot and poured 240mL on top. Planted three Lemon Queen Sunflower seeds about 127mm apart and 12.70mm into the soil. Watered everyday with 120mL of water in each pot. Took average height and observations each week.

Results

The sunflowers with the added calcium did not sprout as quickly, although the average height did end up surpassing the sunflowers without the shells and spines. The ending average height for the row with added calcium was 28.575mm and the ending average height for the row without the crushed shells and spines was 73.025mm.

Conclusions

This study shows that calcium is a very important component of soil and this nutrient is needed by plants. This study also shows that the shells and spines of Red Sean Urchin can be utilized and not wasted.

Summary Statement

My project is about finding a way to utilize the leftover shells and spines of Red Sea Urchins from my family's business by mixing them into soil, because plants benefit from added calcium.

Help Received

My mother, Millie Nagata; My uncles, Ryo and Kai Nagata; Mr.Dev; Ocean Queen; Armstrong Garden Center; Pasadena Library.