



**CALIFORNIA STATE SCIENCE FAIR  
2017 PROJECT SUMMARY**

<b>Name(s)</b> Scott Weston	<b>Project Number</b> <b>J1133</b>
<b>Project Title</b> <b>Effects of Food Sources on Different levels of Vermicompost</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> More and more people are vermicomposting rather than just composting because vermicomposting creates more fertile soil and is a significantly faster process. The goal of my project is to find the best food wastes for to put into vermicompost bins. In my experiment, I tested four groups of food wastes and the resulting soil fertility. My vermicompost groups were fruit wastes, vegetable wastes, scraps(no meat) and mixed food group(all foods combined). Based upon my research I believed the mixed food group would produce the most fertile soil due to its diversity in food sources providing a variety of different minerals in the soil.</p> <p><b>Methods/Materials</b> I first set up the bedding of the 20 test vermicomposting bins by shredding up newspaper, then mixing it with the proper materials(sand, coffee, coconut coir, water). I then evenly distributed worms and set up the food bins, continually feeding them every five days over a 50 day(7 week) period. Once the worms had made fertile castings, I tested 160 test samples for results with Rapitest Luster Leaf digital soil fertility test kits.</p> <p><b>Results</b> I tested the vermicompost from the 20 different worm bins for levels of nitrogen, phosphorus and potassium. I repeated the tests twice for each bin. There was a significant difference for the levels of nitrogen in the fruit waste and mixed food groups. The mean for fruit waste was 34 ppm nitrates(sufficient), while the mixed food group had 56 ppm nitrates(sufficient). The vegetable group obtained 76 ppm nitrates(surplus) and the "scraps" food group nitrate level was 74 ppm(surplus).</p> <p><b>Conclusions/Discussion</b> The vegetable waste and the scraps seemed to produce the most fertile soil, but all of the soil, including the mixed and fruit waste groups, contained a good supply of the proper nutrients. I was glad to find that all of the vermicompost test soils had desirable levels of nutrients, indicating fertile soil. For comparison, I tested ordinary native soil and found it lower in nutrients and much less fertile than the vermicompost. My project may help many people remember to add vegetables to the compost and not just fruit wastes alone in the bin, as fruit alone will significantly lower the levels of nitrogen. However, the vermicompost produced even with fruit alone will likely be fertile.</p>	
<b>Summary Statement</b> The goal of my project was to see which food wastes contributed to the most fertile soil.	
<b>Help Received</b> My science teacher provided me with the proper guidance and helped me understand how a vermiculture functions. My parents drove me everywhere I needed to go and helped me gather the supplies I needed. They also provided the proper supervision. The Encinitas Soloana Center educated me on how to set up	