



**CALIFORNIA STATE SCIENCE FAIR  
2017 PROJECT SUMMARY**

<b>Name(s)</b> <b>Adelaide M. Cahill</b>	<b>Project Number</b> <b>J2304</b>
<b>Project Title</b> <b>How Diet Affects Vermicomposting</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of this study was to determine how diet would affect the reproduction rates of red wiggler worms and impact the nutrients of the castings they produce. <b>Methods/Materials</b> Constructed seven vermicomposting bins to determine the diet that would produce highest reproduction rates and most nutrient rich castings. Chose three food diets of: citrus and onions, fruits and vegetables and grass and leaves. Watered and fed over one month, taking observations daily. <b>Results</b> I analyzed my data by counting the number of worms, worm cocoons and conducted a soil casting test. Colonies fed grass and leaves produced the most nutrient rich castings and much higher reproduction rates. The fruit and vegetable diet was less beneficial followed by the citrus and onion diet which had the lowest reproduction rates and least nutrient rich castings. <b>Conclusions/Discussion</b> The citrus and onion bins followed my hypothesis of producing the least beneficial environment because of the high acidity in this diet. The grass and leaves bins were the most beneficial because they closely mimicked the worms natural environment as well as providing a balanced diet of carbon and nitrogen which the fruits and vegetable bins did not. My results showed me which diets would help maintain healthy, vermicomposting bins leading to the greatest reproduction rates of worms while also producing the most beneficial castings for farmers and gardeners.	
<b>Summary Statement</b> I determined that a balanced diet of both carbon and nitrogen rich foods dramatically effects reproduction rates of red wigglers and the nutrients in their castings.	
<b>Help Received</b> I constructed the bins with help from my father and performed the experiment independently.	