# Is Larvae the Solution to Decreasing Plastic Waste?

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Approximately 300 million tons of single-use plastic each year is discarded. It takes 450 years for a bottle to decompose. This project's focus is to identify environmentally friendly methods of reducing plastic waste as well as increasing the degradation of plastic bottles. In this 7-week long experiment, four ventilated bins, each separated into 3 sections contained plastic water bottle pieces. The first section contained a water bottle cut in half. The second and third sections contained plastic strips and shredded plastic respectively. The first container was the control. An ultraviolet (UV) light covered the second container. The third container contained mealworms while the fourth container contained waxworms. At the end of 7 weeks, the plastic exposed to constant UV light showed more signs of degradation than the other plastic. The mealworms consumed 20% of the water bottle cut in half, 9% of the strips, and 27% of the shredded plastic. The waxworms consumed 9% of the shredded plastic. This study showed that both mealworms and waxworms consumed plastic. Mealworms consumed significantly more plastic (in all forms) than the waxworms. The plastic under constant UV light showed more visible signs of degradation than the control. Future experiments will clarify the most efficient natural plastic consumers, as well as identify what product(s) the consumed plastic converts to if not totally dissolved. Photodegradation of plastic will be further investigated by increasing the length of time plastic is exposed to UV light.

**Awards Won:**