Evaluating the Viability of Reducing Waste with Tenebrio molitor

Hughes, Katee

Plastic bottles, bags, milk jugs, and Styrofoam are four of the top ten most common items found in landfills. This is problematic because items made of these plastics take the longest to decompose. One possible solution that has recently been discovered is the use of meal worms to decompose plastics. This project was designed to test the rate meal worms are able to digest plastic bottles, bags, milk jugs, Styrofoam, and plastic utensils and if meal worms are a viable option to effect the use of landfills and recycling plants. To test this 100 meal worms were separated into fifteen containers containing nesting material. Cut up pieces of the different plastics were added to each jar with three containers of each type of plastic. The containers with the meal worms and plastic were kept in a warm, dark, climate controlled area. The plastic was taken out of the jar once a week for four weeks to be measured. At the end of four weeks all plastics had some consumption observed with Styrofoam 64% consumed, water bottle 49% consumed, milk jug 46% consumed, plastic utensil 40% consumed, and the plastic bag 29% consumed. These data could be impactful because 100 meal worms are able to consume the amount of plastic Americans use daily (226.796 g) in sixty days and for every 100 meal worms added the time required could be cut in half.

Awards Won: