



CALIFORNIA STATE SCIENCE FAIR 2013 PROJECT SUMMARY

Name(s) Akua Brown; Reiko Silva	Project Number J2002
Project Title What Nontoxic Substances Best Attract Ants?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Ants are considered nuisances because they infest our homes, businesses and schools. In the U.S. alone, ants cause billions of dollars of destruction every year. Scientists are trying to find new and effective methods to safely control ants. Information on food preferences and foraging habits are necessary for developing improved baits to control ant infestations. Our project was designed to test which common household substance would attract the largest quantity of ants. We hypothesized that bacon grease would be the most attractive to the ants based on the fact that pavement ants (<i>Tetramorium caespitum</i>) prefer grease and protein based foods. Our experiment was conducted on a sidewalk where pavement ants are one of the more common species to the region.</p> <p>Methods/Materials We tested 11 different household substances including water, turkey, In-N-Out hamburger meat, Nature's Domain dry cat food, bacon grease, McDonald's fries, Mother's Circus Animal cookies, guava jelly, Pixie Stix, maple syrup, and Elmer's liquid glue. Our control was water, because it is colorless, odorless, and tasteless. We chose our materials because they are non-toxic and generally found in both residential and commercial areas. We placed one tablespoon of each substance on strips of blue masking tape on the pavement. We counted the ants at 15 minute intervals for a period of 90 minutes. Twenty trials were conducted for a total of 30 hours of observation. To keep variables constant, we conducted our trials between 4 pm and 5:30 pm.</p> <p>Results Maple syrup attracted the greatest number of ants with a total of 10,225 ants observed (69%). Jelly came in second with a total of 3,503 ants (24%). Bacon grease was one of the least attractive substances with merely 56 ants recorded (0.4).</p> <p>Conclusions/Discussion Developers of ant bait can benefit from research about ants' food preferences to improve their effectiveness. Consumers of ant bait could also use this information to place the ant baits near a substance that would attract ants. After 30 hours of observation and counting 14,844 ants, our data did not support our hypothesis. The ants clearly favored sugar based substances, over bacon grease. With further research, it may be possible to create homemade ant baits using maple syrup or jelly to draw out ants and get rid of them. Use of nontoxic baits would eliminate the danger that poisonous baits pose to young children and pets.</p>	
Summary Statement Attracting more than 10,000 ants, we found that maple syrup attracts the most ants after testing common household substances.	
Help Received Our parents provided research materials, and together with our coach, Miss. Kendia Herrington provided guidance and supervision during our experimentation.	