

The Effects of Juiced Fruit on Earthworm Burrowing

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Abstract

The purpose is to find which juiced fruit makes a worm burrow the fastest. This could help farmers determine what fruit they could grow the most of, so that people can get enough food. We bought and juiced fruits and soaked paper towels in the juice. We put the worm on the paper towel, put it inside the cup with dirt, and then timed how long it took for the earthworm to burrow in the cup. This is important for human health because depending on the type of fruit a farmer grows will change how fast a worm fertilizes. The more the soil is fertilized, the more fruit will be produced for humans to eat.



Introduction

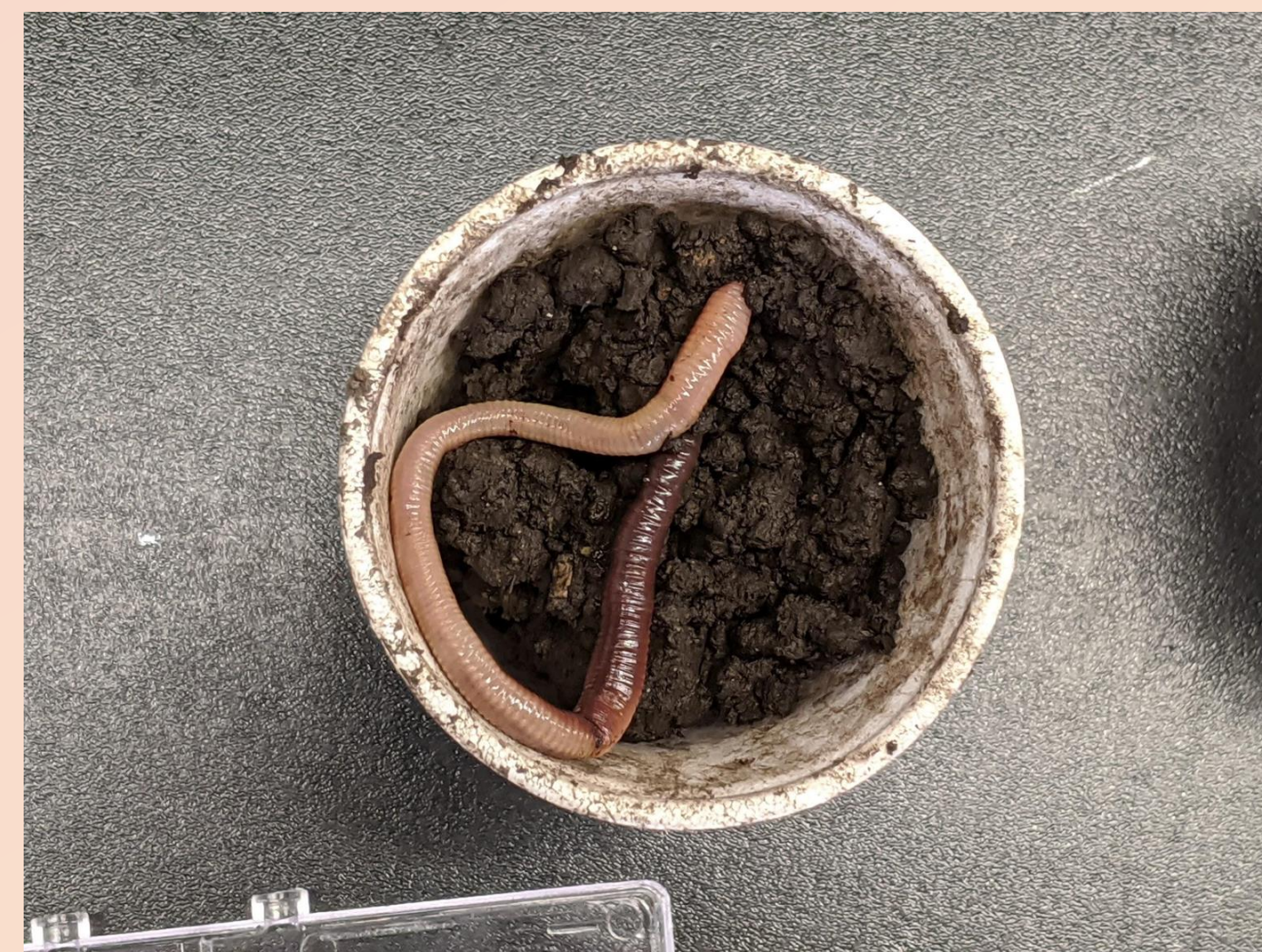
Our group tested to see what types of juiced fruits would make worms burrow faster. We used the juiced fruits to see if these healthy food items had a healthy effect on other animals. Juiced fruits affect humans by giving them important nutrition that is vital in keeping good health. It can also give vitamins that contribute to bone growth (Zelman, 2010). We tested worms because they are easy to obtain, they are similar to humans, and we can see the effect of many chemicals on humans through testing them on worms. Also, worms have a similar structure, nervous system, and digestive system (Robb).

We think that juiced pineapple will make earthworms burrow the quickest, and that the pineapple will be the most acidic out of the group. We recently did an experiment that showed earthworms burrow the quickest in acidic substances rather than substances that are more neutral or basic.

Materials and Methods

Our materials were a pineapple, a lemon, grapes, a blood orange, strawberries, plastic bags, a kitchen hammer, cups, paper towels, a stopwatch, dirt, and a knife.

1. We bought the fruits.
2. Then, we sliced the fruit, put it in plastic bags, and smashed or juiced the fruits using a kitchen hammer.
3. We poured each of the juiced fruits into cups by cutting the corner off of the plastic bag.
4. We dipped a paper towel piece in each of the juices.
5. Next, we put a worm on a paper towel with the juice for one minute.
6. After the minute was up, we put the worm in a cup of dirt and timed how long it took to start burrowing.
7. We did this for each fruit juice four times.
8. Finally, we took all of our data and analyzed it using the unpaired T-Test.
9. We found that lemon is the most acidic fruit out of all the fruit we tested.

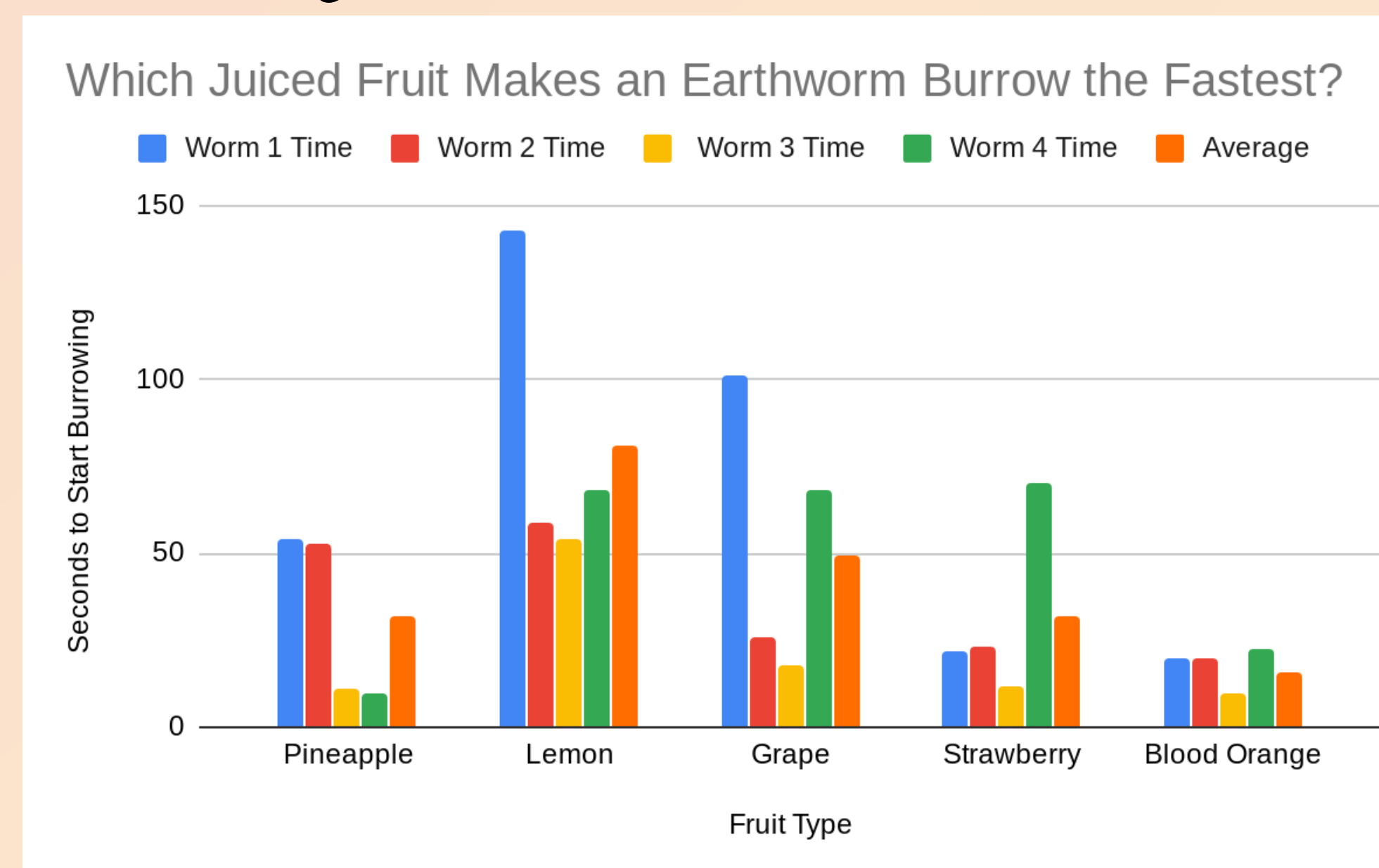


Results

Our results show that the blood orange juice makes the earthworm burrow the fastest, with an average of 15.62 seconds. This disproves our hypothesis which was that pineapple would be the fastest. The second fastest was pineapple with an average of 31.76 seconds. Third was strawberry with an average of 32 seconds. Fourth was grape with an average of 49.57 seconds. Lastly lemon was slowest with an average of 80.97 seconds. The independent variables are the different fruits we tested, the dependent variables would be the times it took to burrow and controlled variables would be using the same fruits and the same methods to get the juice from the fruits. Also we used dirt from the same bin, and let each worm soak on the paper towel for one minute.

Graph

This graph shows that some worms burrowed at very different times when soaked in the different juices. This graph also shows all the average of the worms trials. Like blood orange made the worms burrow at an average of 31.76 seconds but grape made them burrow at an average of 80.97 seconds.



Fruit Type	Worm 1 Time	Worm 2 Time	Worm 3 Time	Worm 4 Time	Average Time
Pineapple	53.84	52.46	10.84	9.88	31.76
Lemon	143	58.61	54.28	68	80.97
Grape	101	25.68	17.62	68	49.57
Strawberry	22.1	23.18	11.72	70	32
Blood Orange	20.08	19.92	10.03	22.46	15.62

Discussion

Our three significant results within our experiment was lemon to grapes, and lemon to blood orange all with 0.03 p-values. We thought that a pineapple would make a worm burrow the fastest, but blood orange did. We think the blood orange made the worm burrow the fastest because it wasn't so acidic that it confused the worm, but enough to make it burrow faster. A limitation or error that we encountered is that it was hard to tell when the worm started burrowing. Some worms also played dead at sometimes, which might have messed with our results. A future experiment that we could do regarding this topic is to test test other fruits like apples, pears, pomegranates, and limes. Overall, our results matter to the world because it could help farmers determine which fruit would be the most prosperous according to the worm's burrowing time.

Works Cited

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