

Superworms & Color Temperature

A Study of Preference By Joshua Blair

Introduction, Hypothesis, and Method

Super worms are the larvae stage of the Darkling Beetle they originated in Central and South America. (1) They are now all over the world, primarily for their use as reptile food. Most of the research done on them is in relation to their use as food. Although more recently there have been studies on their ability to eat styrofoam, and derive nutrition from it. (2) Their natural diet consists of oats and fruit. (1)

I predict that Superworms when given a choice between warm and cool color temperature they will favor the cooler color. Superworms attempt to live much of the life below the surface and do not like direct light preferring darker areas. I predict that the cooler colors will be more akin to their natural habitats.

Method: In test 1; I placed the subject in the enclosure below (Figure 2.1) I chose blue and pink due to their striking visuals. Though both colors are actual on the cool side of the spectrum, the blue chosen is a more deep cool however (Figure 1.1). A neutral yellow starting area was at the center marked 0. The worms would then have 1 minute to explore the enclosure before their movement would be tracked. At 30 second intervals I would measure their distance from the center, from -13 representing deep-cool to +13 representing deep-warm tones. I did this for five minutes. I conducted this test with 2 individuals

For test 2; I had the same set up as test 1 with the added element of a food cube placed at +8 in the pink to gauge if the worms would show a preference. (This color was chosen as the data supported a slight preference to the blue or negative side during test 1.)



Figure 1.1 Color Wheel
This is a sample color wheel from companion site to AUF (3)

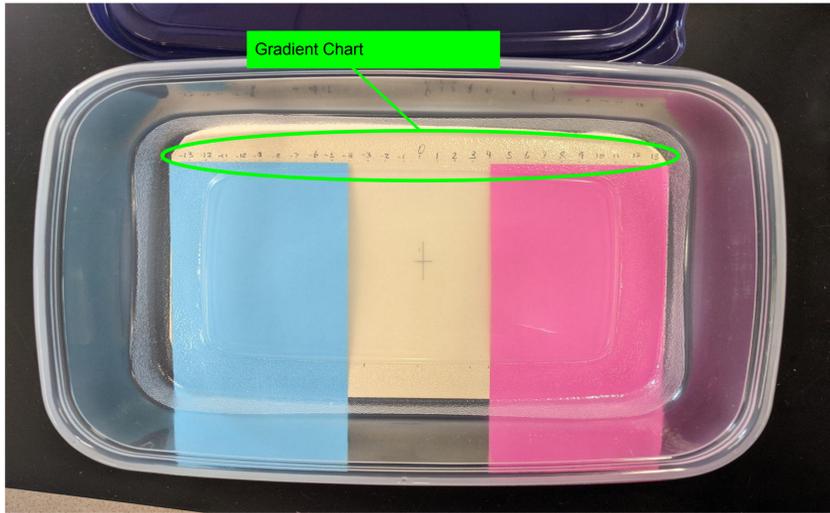


Figure 2.1 Test 1
This is a picture of the enclosure set up for test 1.



Figure 2.5
Superworm
This is a picture of a Superworm

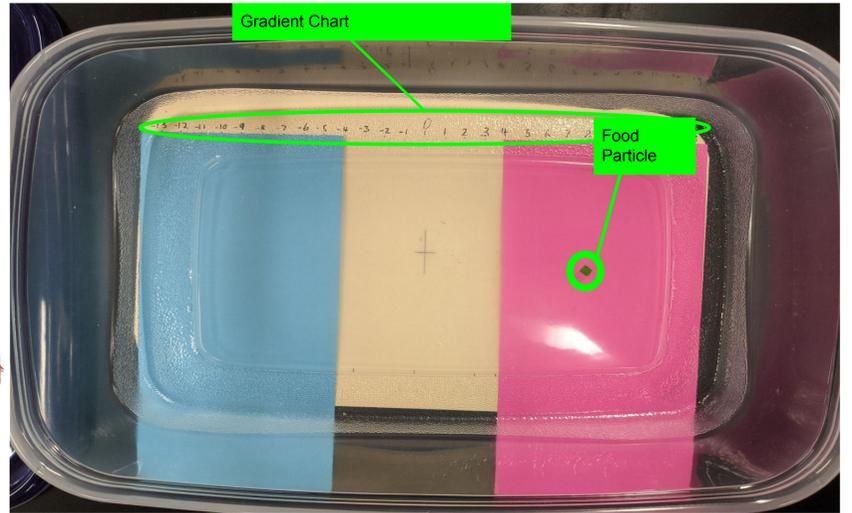


Figure 2.2 Test 2
This is a picture of the enclosure set up for test 2.

Results

The Average score for subject 1 in test 1 is -2.8
The Average score for subject 1 in test 2 is -0.8

The Average score for subject 2 in test 1 is -2.5
The Average score for subject 2 in test 2 is 5.6

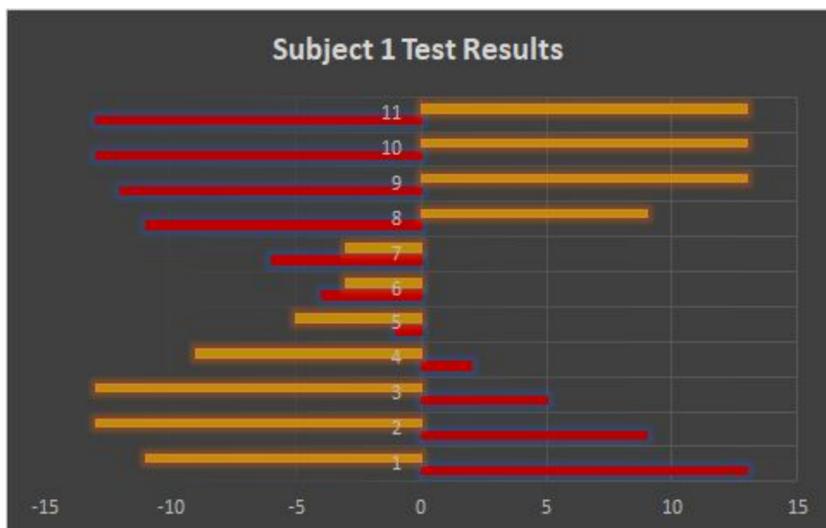


Figure 3.1 Subject 1 Results
This is a graph marking subject 1's test results. In red are the results of test 1 and in orange are the results of test 2

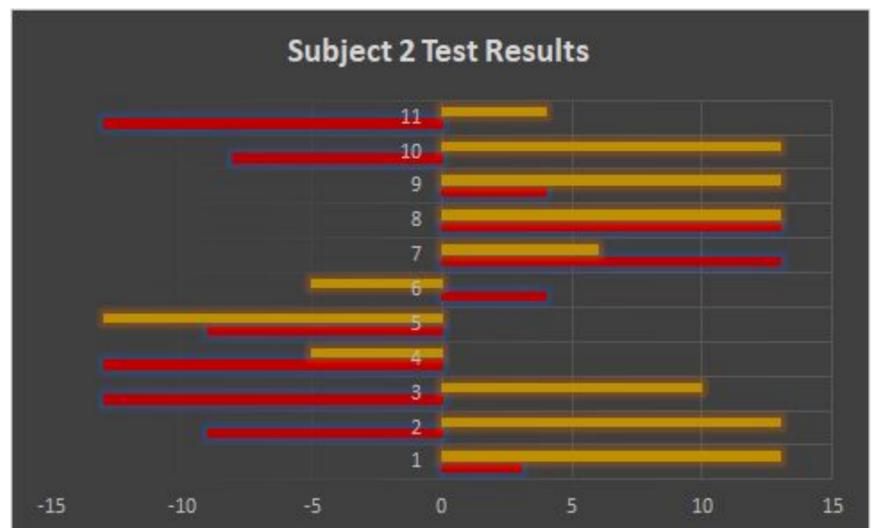


Figure 3.2 Subject 2 Results
This is a graph marking subject 2's test results. In red are the results of test 1 and in orange are the results of test 2

Discussion & Conclusion

The outcome of my limited testing was interesting. In 3 out of 4 tests performed the worms seemed to prefer the cooler color, supporting the original hypothesis. There would need to be more tests performed to give any hard conclusions. In the second round of test both worms showed less of a preference for blue than in a test 1. Subject one had a difference of 2 points, while subject 2 had a difference of 8.1.

For the enclosure used in this experiment did not have uniform floor. The outer edge of the enclosure had textured feel, while the center was smooth. This could have played a role in their behavior.

More test would be required to reach a full conclusion. These experiments were limited to 2 subjects and only to two rounds of tests.



Figure 4.0 Starting Position of Test
This figure show the starting position of test subjects

Citations

Source 1 "Zophobas Morio." *Entomophagy Wiki*, entomophagy.fandom.com/wiki/Zophobas_morio.

Source 2 "Superworms Digest Plastic, with Help from Their Bacterial Sidekicks." *ScienceDaily*, ScienceDaily, 27 May 2020, www.sciencedaily.com/releases/2020/05/200527105055.htm.

Source 3 "Color Theory." *Desktop Publishing*, cios233.community.uaf.edu/design-theory-lectures/color-theory/.