

The Latest Buzz About Bees

Team #102

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New Mexico Supercomputing Challenge Final Report

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A phenomenon happening around the world has become a problem that has stumped scientists all over the world. Colony Collapse Disorder is an issue that is killing off millions of honey bee colonies. Many theories have arisen due to this problem, in which, to find a cure or the source. This disorder needs to be acknowledged to the entire population, because its not just happening in a few countries; but all of them. The more that is acknowledged to help this problem, the world will be prepared for the effects that will come with the result of the disappearing honey bees. In the wide-spread of ideas that have resulted in the awareness of CCD, the focus will be on pesticides, migratory stress, and immunodeficiencies.

In the world there are 2.5 million colonies, and 27.6 million bees are disappearing per year. In ratio, this is a lot of bees disappearing per year and if nothing is done about this issue, the whole world may be wiped clean of bees. If the world has no bees, then there will be no vegetation, flowers, and fruits. The disappearance of bees will cause a chain effect. Although there is no specific reason for the disappearance, we hope to review all the statistics that involve the many theories that have come about by many famed scientists about the disappearance of honeybees.

Conducting our experiment we are going to use the Net Logo program. This program helps us to make the situations that we put the programmed bees into. We

chose Net Logo because it portrays the realistic side of the experiment. Meaning that when we program the bees to randomly fly around and enter the patches of disease, it could be related to real life when the bees actually do fly around randomly and fly into a flower that they are not aware of that has the disease. Of the three main causes of Colony Collapse Disorder we chose to focus on the disease of immunodeficiencies. An immunodeficiency is a type of disease that targets the honeybee's respiratory system. Often when a honeybee knows that it is no longer healthy they fly off and die on their own, instead of risking the health of the entire colony of which it resides within.

Once a honeybee is in the program and has been infected with the disease we have injected it with an anti-virus. The anti-virus is composed to help the honeybee recover from the many symptoms that the honeybee feels and to also help it return to the colony to resume work. If the honeybee is immune to the anti-virus we suspect that it will not live for more than 2-3 days. A regular lifespan of a worker honeybee is 6 weeks. When making a ratio of a the lifespan of a sick honeybee and a healthy honeybee, the difference between the two numbers is significant.

We learned so much from conducting this experiment, such as learning how to computer program, how to work as a team, how to conduct research using the scientific method, and also how to stay on task and not procrastinate. We also

learned about the Colony Collapse Disorder and went into depth with researching this topic and doing our hardest to prove our arguments and getting through our problems that occurred during the research. We hope that many become more aware of CCD and the effects that could come sooner than we think. We also hope that we somewhat raised awareness of this issue so that many scientists will not just think of this issue as a minor problem that could be solved in a few days and stop putting it off to the side. Something needs to be done about this issue and fast because as a human being it is our job to keep balance within the universe, which includes keeping the honeybees around so that they can continue pollinating the vegetation and flowers that we need and use for many cases that arrive in everyday life.