# CALIFORNIA STATE SCIENCE FAIR
# 2017 PROJECT SUMMARY

**Name(s)**

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**Project Number**

**S2210**

**Project Title**

## Mycelium's Effect towards Varroa Mites and the Honey Bee Population

**Abstract**

**Objectives/Goals**

The purpose for this project is to see which test subjects, Watered Oyster Mushrooms, or Unwatered Oyster Mushrooms, will kill or fend Varroa mites the most, without killing the bees. We decided to experiment on this project to help bring a positive change in the honey bee colony and its production as well as reduce the death rates caused by the Varroa mites by eradicating them.

**Methods/Materials**

We have obtained our major resources of honey bee colonies and bee keeping equipments from the Glory Bee Farm and the Oyster Mushrooms from the product, #Back to the Roots#. We started by checking our 4 bee colonies available to us, to be healthy and well functioning but infested with Varroa mites. After checking the health of the bees, we would divide the Oyster Mushroom block into 2 separate pieces and place them in separate colonies. We then labeled the bee colony boxes for its individuals material and placed the Watered and unwatered mycelium in the correct box. We placed sticky pads underneath the colony to collect the dead fallen mites and record the number of eradicated mites.

**Results**

Compared to the control and the unwatered mycelium, the watered mycelium showed favorable results by eliminating more than 90% of Varroa mites compared to the control. The watered mycelium led to a positive change towards the honey bees and their colony by reducing the number of Varroa mites.

**Conclusions/Discussion**

Our experiment shows that the Watered Oyster Mushroom is the most effective way to kill the varroa mites, because the number of dead mites in the total span of the experiment was 425 for the Watered Oyster Mushroom compared to the Control which had 26 and the Unwatered Oyster Mushroom which had 30. The Unwatered Oyster Mushroom had little to no effect on the mites and had the same result as the control (natural). We can conclude that in order for the Oyster Mushroom to be effective for the bees, it needs to be watered. Given the data, the results shows that the Oyster mushroom gave the most positive, long term effect against the mites. This will allow bee keepers to use organic and nonharmful substances to kill pests, in this case the Varroa Mites, to create a healthier bee colony rather than using harmful and in some cases, illegal pesticides to eradicate the Varroa mites and hurting the honey bees.

**Summary Statement**

We tested factors of Mycelium and learned that Watered Oyster Mushroom will most effectively eradicate Varroa mites and support the growth and production of the honey bee colony.

**Help Received**

We received help from Ben, a beekeeper at Glory Bee Farm. He taught us how to properly handle the bees and gave us advice on how to count the Varroa mites found in Honey bee colonies.