CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)

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Project Number

J2307

Project Title

Attack of the Whiteflies

Abstract

Objectives/Goals

After noticing whiteflies on a plant at school, we decided that we would like to test ways of controlling them. After doing research and learning that synthetic pesticides are most commonly used for whitefly control, we became determined to find a more efficient, cost effective, and ecologically friendly way of controlling whitefly population.

Methods/Materials

We planted 20 Bonnie Hybrid Cabbages in separate cages, making 4 different groups of 5 plants each. Each plant was infested with 50 Greenhouse Whiteflies. Triazicide and Organocide we both mixed according to the manufacturer's instructions. The plants in those two experiment groups were sprayed three times a day for the one week test period. 10 ladybugs were introduced into each of the 5 plant cages of the third experiment group. The fourth group was left untreated as a control group. All plants were watered daily. A population count of whiteflies was taken every day for a week and the results recoded for analysis.

Results

When Triazicide, Organocide, and Lady Bugs were tested; the Lady Bugs were found to be the most effective and environmentally friendly method of controlling a whitefly population. In most trials, the Whiteflies sprayed with Triazicide and the Whiteflies controlled by a population of Lady Bugs died out completely after 4-5 days. The Lady Bugs are known to be a more natural, and non-toxic, method of eradication than the Triazicide. The Organocide has mixed results, usually leaving 10-15 Whiteflies still alive, but sometimes killing them all. Our experiment demonstrates that Lady Bugs are the fastest, cheapest, and most environmentally friendly method of Whitefly control.

Conclusions/Discussion

Through this experiment, we found that both ladybugs and chemical pesticides effectively eradicate whitefly infestations in about the same time period. However, the chemical pesticide was able to accomplish this in a faster time period (four days) than the ladybugs (five days).
Unfortunately, our hypothesis was incorrect- the Triazicide was most effective (in speed), followed by the Ladybugs, and lastly, the Organocide. The most obvious unexpected result was that the Triazicide was the best in eradicating the whiteflies. Another unexpected result was that some of the Ladybugs disappeared, which could be linked with ladybug cannibalism or faults in the cage system.

Summary Statement

Our project set out to compare effectiveness and cost of competing pest control methods.

Help Received

Consulted with professionals in planning and hypothesis stage; material support from parents; teacher support in class