CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
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Project Number
22219

Project Title
Are Bumblebees Local Shoppers?

Abstract

Objectives/Goals
The purpose of my project was to learn more about how bumblebees forage for nectar and pollen. Specifically, I tested the hypothesis that worker bees return to local patches of flowers as they forage throughout the day instead of looking for food at many different patches. I expected workers to forage in this way because it would save them time. The more efficient the workers are when foraging, the more new queens and males the colony will produce at the end of the season.

Methods/Materials
I marked bumblebee workers at five different patches of a mint called Stachys ajugoides. The distance between pairs of patches ranged from about 9 meters to 100 meters apart. At each patch, I used a different color of Testor model airplane paint to mark the bees. For example, at patch one I marked all the bees I could catch dark blue, and at patch three I marked them all green. I referred to the paint color used at a particular patch as the #home color# for the patch. After marking the bees, I returned to the patches 17 times over a period of three days and recorded the color of any bees I saw at each patch. If the bees I marked where resighted where they were originally seen, then my hypothesis would be true.

Results
The pattern was very strong. When results for all five patches are combined, 92 percent of a total 98 resighted marked bees had the home color. Values for individual patches ranged from 100 percent to 77 percent.

Conclusions/Discussion
It appears that bumblebees discover rewarding patches of Stachys ajugoides flowers and then continue to visit them for a period of time. They do not seem to search out new patches each time they go out to forage

Summary Statement
My project was about the foraging behavior of bumblebees.

Help Received
My dad suppiled me with my equipment. He also helped me with the actual project.