CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)
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Project Number
31564

Project Title
Does SPLAT DMDS Repel Bees?

Abstract

Objectives/Goals
The objective of my experiment was to determine whether beneficial insects, specifically pollinating bees, were also repelled by SPLAT DMDS. This product was developed to keep the Asian Citrus Psyllid (ACP), the vector of the bacteria that causes the deadly Citrus Greening disease, away from citrus plants.

Methods/Materials
I used a choice test to determine the effect of SPLAT DMDS on bees. I used eighteen Petri dishes and nine beehives. At each hive, I created a station, two Petri dishes filled with a vanilla-scented saturated sugar solution, to trigger bee activity and visitation at the Petri dishes. Once bee visitation was consistent, I added the testing product (either a table spoon of Ammonia #as a positive repellent control, or a spoonful of SPLAT # the test substance) to one of the Petri dishes at each station. Every ten seconds, I took a photograph of each station so I would be able to collect my data at the end of the day. To collect my data, I counted the number of bees that visited each dish and then found the average of the bee visitation per treatment.

Results
I found that ammonia has a 95 percent repellency on the bees, whereas SPLAT DMDS reduces bee activity by 36 percent.

Conclusions/Discussion
SPLAT DMDS is a product that is being developed to keep the Asian Citrus Psyllid (ACP), the vector of the bacteria that causes the deadly Citrus Greening disease, away from citrus plants. Citrus greening is a fatal and incurable disease that is devastating the Florida Citrus industry. Freshly applied SPLAT DMDS has a very high dose of the repellent, however in a real field situation it would be sitting there for up to three months emitting DMDS and repelling the psyllid. Because the dose of the DMDS decreases over time, the fresh SPLAT represents the worst case scenario in bee visitation reduction. The repellency of the ACP might be so beneficial to the protection of citrus groves that this small, momentary reduction in bee visitation detected in my experiment would be an acceptable side effect.

Summary Statement
Choice tests demonstrate that SPLAT DMDS, an Asian Citrus Psyllid repellant, has a low repellency on bees.

Help Received
Father was advisor; UCR provided beehives; ISCA Technologies provided SPLAT DMDS samples

Preliminary