CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)

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Project Number

31254

Project Title

The Toxicity Rate of Pesticide Percolating into Different Soils

Abstract

Objectives/Goals

I am doing this project is because the left over used pesticide will either mix with runoff water, or percolate into soils and seep into ground water, making it undrinkable, wasting millions to filter it.

Methods/Materials

I used a ruler, measuring cup, timer, 5 14 in tubes(with 4 holes vertically on it), crickets, fine soil, coarse soil, cotton balls, (liquid) pesticide, and disposable gloves. I placed 5 tubes next to each other on a wooden base, poured soil into the base tubes, placed a cricket in each of the smaller tubes, plugged the ends with cotton balls, poured 1 oz of the pesticide in a measuring cup, poured 1 oz on each tube, checked the crickets every 15 minutes, 4 times, recorded the data, cleaned out the tubes, repeated the steps, and did repeated this for the other soil.

Results

The pesticide percolated farther down the sandy soil instead of the fine soil, possibly since it had more gaps in between the grains then the fine soil, allowing the pesticide to percolate farther. I also believe that the pesticide could have some how avoided the indicators without poisoning them. Though if neither of those were right, its was possible that the pesticide wasn#t strong enough to show signs that the crickets were effected by the pesticide within the hour.

Conclusions/Discussion

My hypothesis was incorrect. The pesticide percolated farther down in the coarse soil, then the fine soil. I also found that this was possibly due to different 4 theories. The pesticide didn't make contact with the crickets, the coarse grains allowed it to percolate farther, the pesticide was not strong enough to show any effects in the hour, or it just didn't percolate very far. I also found that though the crickets did make contact with the pesticide did, they didn't all die until about 1 hour after. And so, people who use pesticides on rich soil have more time to extract it before it mixes with ground water. Another thing is was that the pesticide seemed slow percolating due to cold temperatures, similar to how oils percolate slower in cold water. farmers, who use pesticides, at risk of tainting ground water, and those near sand based areas, are doing more damage to the environment than they think, even if it doesn't percolate directly.

Summary Statement

Investigating the toxicity rate of pesticide percolating into different soils

Help Received

My mother helped during the experimentation, my father helped shape the tubes, and Mr. Gong helped me write the graphs