



CALIFORNIA STATE SCIENCE FAIR 2013 PROJECT SUMMARY

Name(s) Ward H. Watts	Project Number J1514
Project Title Keep Off the Turf?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My objective was to determine whether bacteria is growing on the three artificial turf fields in my home town. If so, which artificial turf field has the most bacteria? Further test the colonies to determine if any are Staph.</p> <p>Methods/Materials With sterile swabs, I obtained samples from three different locations on each of the three artificial turf fields for a total of nine samples. I grew each sample at room temperature on prepared petri dishes with agar for 5 days. I observed, logged and analyzed my data. I counted how many colonies there were on each petri dish. I averaged the bacteria colonies for each location and compared them to each other.</p> <p>Results The results found bacteria on all three artificial turf fields. The most bacteria was found on the football field, the oldest field of the three. The baseball field, the second oldest, had slightly less bacteria than the football field. The soccer field, installed this year, had the least.</p> <p>Conclusions/Discussion Bacteria grew on all of the fields despite the fact that the turf fibers are inert and that there is nothing to feed it. I believe bacteria is brought on to the turf by people spitting, rubbing their bodies on the turf, and by what people bring on the bottom of their shoes. Heat from the sun should kill bacteria but our coastal climate doesn't have the hottest weather. I predicted that the oldest field would have the most bacteria but was surprised by the amount found on the baseball field since the field is not being used as often and is not as old. I did additional testing to see if any of the colonies could be staph. I did gram staining and found 4 colonies - two from the baseball field and two from the football field. I tested these colonies to see if they would grow on a MS (mannitol salt agar) plate that only grows staph. 3 colonies grew on the MS plate. One of the three changed the plate yellow, indicating <i>S. aureus</i> - a strain that people can be sensitive to and can be dangerous if it is antibiotic resistant. I can imply, based on my results that the soccer field will eventually have bacteria like the football field and that people should be aware of the potential dangers.</p>	
Summary Statement Determine if bacteria grows on artificial turf fields.	
Help Received My mom helped me design my experiment and type my report. To do gram staining, I used the lab equipment at SF State under the supervision of a neighbor, a SF Biology teacher- Amber Johnson.	