



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Ketan Chopra	Project Number S1405
Project Title Can We Use a Biological Agent to Control a Plant Disease?	
Abstract	
Objectives/Goals To find out if we can use a biological agent, such as a bacterium, to control some plant diseases.	
Methods/Materials Materials: a. One bag of 50 pound bleached sand b. Two packs of turfgrass seeds c. Peter#s Liquid Fertilizer d. A dozen Petri dishes e. Dollar Spot Inoculum f. Growth Medium (Potato Dextrose Agar) g. Water h. 10 six-inch plastic pots Procedure: 1. Take ten 6-inch diameter plastic pots and fill to the top with bleached sand. 2. Sprinkle 0.25 grams of turfgrass seeds and water it from the top. 3. Add 10 mL of Peter#s Liquid Fertilizer every week. 4. After the seedlings germinate, continue fertilizing till they are two weeks old. 5. Two weeks after germination, clip the grass with a pair of scissors. 6. Obtain a fungal inoculum of dollar spot from a laboratory and apply five grams to all the pots. 7. Cover the pots with a plastic bag for two days. 8. After two days (in two days the disease should spread) apply 15 mL of the bacteria inoculum to 3 pots. 9. Apply 5 mL of fungicide (DACONIL) to three pots. 10. Leave three pots untouched. 11. Visually look at the pots for disease development every day after application for two weeks.	
Results Under the controlled conditions, the bacterium successfully controlled the plant disease.	
Conclusions/Discussion Based on the experiments, we can see that the disease can be controlled by using a bacterium under controlled conditions. In the real world, we use harmful pesticides to help conquer plant diseases. But if we simply use these harmless bacteria, it would help our environment a great deal.	
Summary Statement My project is about how we can use a biological agent, such as a bacterium, to control a plant disease.	
Help Received Used lab equipment in Dr. Mitra's lab.	