



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> Stacey Bacheller; Kaitlyn Miller	<b>Project Number</b> <b>J2302</b>
<b>Project Title</b> <b>If Solar Radiation Increases: Is Our Food Supply at Risk?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Introduction: Increasing amounts of ionizing radiation are passing through to the earth because of ozone depletion. What is the effect of ionizing radiation on plants?</p> <p><b>Methods/Materials</b> Procedure: Five groups of corn, and five groups of soybeans were radiated ranging from no radiation to high doses of radiation. The groups were radiated three times per week for four weeks and measured for germination and growth.</p> <p><b>Results</b> The treated plants germinated more quickly and grew faster, initially. The germination and growth of corn by the end of the experiment was similar for all groups. However, increasing doses of radiation impacted the germination of soybeans, the highest dose group had a 13% reduction of germination compared to the control. The growth of soybeans at the end of the experiment was similar for all groups.</p> <p><b>Conclusions/Discussion</b> Conclusion: We found that our hypothesis was only partially correct. Unexpectedly, the radiation appeared to cause faster germination and faster growth initially. However, by the end of the four-week experiment the radiated plants growth rate slowed, while the control groups growth rates increased. If the changes in germination and growth rates are seen over the life of the plants the radiation impact on agriculture may be significant.</p>	
<b>Summary Statement</b> To study the effect of increasing levels of solar radiation reaching the earth and the impact on the germination and growth rate of corn and soybean seeds.	
<b>Help Received</b> North Oaks Radition Center provided a linear accelator and my father, a radiation oncologist, provided guidance on the project.	