



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) McKay C. Palmer	Project Number J1526
Project Title Salty Germination	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective is to find out if salt water would be beneficial and or toxic in the germination of lettuce seeds.</p> <p>Methods/Materials Seven different concentrations of NaCl were prepared. A control solution of DI water was also used. Four petri dishes were used for each concentration. Brown paper towels were moistened with each of the liquids and added to the petri dish, five seeds were then placed in each one of them. The petri dishes were then covered in a towel and placed in a cool dark area and allowed to germinate for five days. After this period of time the roots of each of the seeds were then measured to determine their growth.</p> <p>Results As the concentration of NaCl increased the amount of root growth decreased. For the NaCl concentration of 0.4M there was no germination. The NaCl concentration of 0.010M actually showed the most amount of growth, this was even greater than the control solution of pure DI water.</p> <p>Conclusions/Discussion The results show that a little bit of NaCl (sodium chloride) is beneficial in the germination (growth) of lettuce seeds. It also showed that at high concentrations of salt water (0.4M), this can be toxic to the lettuce seeds, none of the seeds sprouted. The 0.010M solution of NaCl was the best solution for the germination of the lettuce seeds. Salt buildup is an existing or potential hazard on almost all of the 42 million acres of irrigated farmland in the United States. A small amount of salt in the soil will not affect the germination and growth of crops. However, as salt concentrations go up, negative impacts occur. Eventually salt concentrations will affect the germination of seeds. Excessive salt concentrations are presently costing the U.S. billions of dollars in lost food crop.</p>	
Summary Statement The affects of salt water on the germination of lettuce seeds.	
Help Received Mother helped put the science board together. Dad helped type report. Used chemicals and balance from Clinical Laboratory in Grand Terrace.	