



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Peyton K. Pettyjohn	Project Number J1920
Project Title Cryogenic Seed Exposure	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of this project is to see how freezing seeds using liquid nitrogen (-320 °F) affects seed germination rate, seed dormancy, and viability. This experiment will try to force dormancy, affect germination rate, and affect seed viability for tomato, sage, and sunflower seeds. We are using liquid nitrogen to try to cool the seeds to put them in a stationary state or dormant state by varying the length of time of exposure to liquid nitrogen.</p> <p>Methods/Materials Tomato, sunflower, sage seeds. Freeze seeds in liquid nitrogen for different lengths of time. Place seeds in petri dish inside incubator. Measure total seeds germinated and germination rate over time.</p> <p>Results The trial seeds germinated at the same rate and same percentage as the controls. The seeds were not affected by the liquid nitrogen.</p> <p>Conclusions/Discussion Freezing seeds in liquid nitrogen does not affect seed germination rate, or seed viability.</p>	
Summary Statement I showed that freezing seeds in liquid nitrogen does not affect seed germination rate, or seed viability.	
Help Received My dad built the incubator and helped with Liquid Nitrogen safety.	