



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

Name(s) Jamie A. Hau-Riege	Project Number 35222
Project Title Jamie and the Beanstalk	
Objectives/Goals The purpose of my project, Jamie And The Beanstalk, was to find out how different gases affect the germination and growth of lima beans. I wanted to test my hypothesis that more CO ₂ is beneficial for plants since it is needed for photosynthesis. Abstract Methods/Materials I created two air environments: one in an open container (C), and one in a closed container (A). I also created five environments in closed containers with different amounts of CO ₂ : 100% CO ₂ (B), 50% CO ₂ / 50% air (D), 17% CO ₂ / 83% air (B2), 0.44% CO ₂ / 99.56% (A2) and 0.22% CO ₂ / 99.78% (B21). Each container had about a dozen potted plants with extra water on the bottom of the container. Over time, I recorded the height of each plant. Results Plants with CO ₂ did not exceed the height of plants in air. Plants (B21) with the smallest amount of CO ₂ grew to the same height as plants in air (A), while an increased amount of CO ₂ led to shorter plants (A2). Plants with the highest amount of CO ₂ (D and B) did not sprout at all. Also, plants in closed containers (air and CO ₂) began growing about 100 hours sooner than the open container C. Conclusions/Discussion I conclude that plants can still thrive in some CO ₂ , but too much is like a medication overdose, leading to death. Also my experiments show that plants grow better in greenhouses than open air.	
Summary Statement This work investigates the effect of different gas concentrations and environments on Lima bean plant growth.	
Help Received My dad helped drilling the holes in the containers.	