



**CALIFORNIA STATE SCIENCE FAIR  
2008 PROJECT SUMMARY**

<b>Name(s)</b> <b>Elizabeth A. Schmall</b>	<b>Project Number</b> <b>J1724</b>
---	---------------------------------------

<b>Project Title</b> <b>Jack and the Fertilized Beanstalk</b>
--

<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> In the fairytale, Jack's angry mother just threw the bean seeds out the window and the beanstalk grew all the way to the clouds with no fertilizer at all! # Realistically, does using fertilizer have an effect on a plants growth? If so, will a bean stalk grow taller using a chemical fertilizer or an organic fertilizer? Hypothesis: I predict that using some type of fertilizer will grow beanstalks taller. I also predict that the steady supply of nutrients that the organic fertilizers provides will grow the beanstalk taller than the higher nutrient but not long lasting chemical fertilizer.</p> <p><b>Methods/Materials</b> Materials: 27 bean seeds, Miracle-Gro All Purpose Fertilizer, Dr. Earth Organic 5 Fertilizer, 3 identical plant containers, Water, Sun, Potting soil, Measuring cup, Measuring tape, Calculator, Gallon container to mix fertilizer, Camera</p> <p>Procedure: A. Prepare 3 identical pots for planting, with 9 seeds in each pot and label. B. Add Miracle-Gro to chemical pot and Dr. Earth to the Organic pot. C. Each pot receives the same amount of sun and water daily. D. Begin recording data when first beanstalk sprouts and continue recording for the next 7 days. Measure all beanstalks heights in a pot, total the measurements and divide by 9(seeds per pot) to get the average. Do this for each pot. E. Take notes daily on how the beanstalks appear. Note the number of leaves, size of leaves and color.</p> <p><b>Results</b> Although the chemically fertilized beanstalks sprouted first, the organically fertilized beanstalks grew taller by the end of my test period. Visually, the Organic beanstalks had larger and more leaves than the chemical and no fertilizer beanstalks. The chemically fertilized beanstalks took second place visually as well. Organic: 9 of 9 seeds sprouted, average height on 2/28/08 was 5.16cm. Chemical: 8 of 9 seeds sprouted, average height on 2/28/08 was 3.94cm. No fertilizer: 5 of 9 seeds sprouted, average height on 2/28/08 was 2.22cm.</p> <p><b>Conclusions/Discussion</b> Unlike the fairytale, using some sort of fertilizer will help beanstalks grow taller than no fertilizer. Using an organic fertilizer will grow beanstalks taller than a chemical fertilizer. This is good news, in case you want to eat the beans!</p>
---

<b>Summary Statement</b> What fertilizer will produce the tallest beanstalks; chemical, organic, or no fertilizer at all?
--

<b>Help Received</b> The employee at Shore Gardens was very helpful by explaining some facts to me about fertilizers, including the NPK number. He also helped me choose which brands of fertilizers to use for my experiment. My mom helped me by driving me to Shore Gardens. She also helped me plant the seeds and
---