



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

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<b>Project Title</b> <b>Organic vs. Synthetic: The Effect of Fertilizer on Plant Growth</b>	
<b>Abstract</b> <b>Objectives/Goals</b> I am a gardener, and have always wondered if organic fertilizer works better than synthetic fertilizer. The purpose of this project was to see if I have been using the best method of fertilization in my garden. <b>Methods/Materials</b> For this experiment, I had three different planter boxes; one treated with organic fertilizer, one treated with synthetic fertilizer, and one treated with no fertilizer. (This was my control group.) In each planter, I planted five bean seeds and 10ml of grass seed. I kept all the planters in the same window, at the same temperature, and gave them the exact same amount of water. The only difference in their treatment was the difference of fertilizers received. Every three days I measured the height of each plant, and recorded it. After sixty days, I cleaned all the soil from the roots and weighed the plants for a biomass. (I measured the biomass of the beans only, because the grass would not completely separate from the soil.) <b>Results</b> The results of my experiment were as follows: The organic grass grew to be the tallest of the three grasses (12.7cm) with synthetic at the second highest(11.4cm), and control the lowest (10.8cm) However, the control beans had the greatest average height (74.7cm) and biomass (13.06g), with synthetic in second (70.9cm, 10.114g), and organic in last (48.4cm, 6.192g). <b>Conclusions/Discussion</b> I concluded that the results from the grass supported my hypothesis; the organically grown grass was clearly larger at the end of 60 days. For the beans the results did not support my hypothesis, as the organic group was beaten by the other two groups by a large margin. I conducted further research, and concluded that 60 days was not enough time for the bean plants, which have a larger seed than the grass, to begin drawing from nutrients outside of the seed pod (In this case, the fertilizer. I felt that the results would have been different if the beans had been fully mature. One large question that arose from this experiment was; what would have happened if the bean plants had been grown for a longer period of time? I also think that it would be interesting to see the long term effects of treating soil with the two fertilizers. This could be tested by growing new plants in soil treated with fertilizer from a previous experiment.	
<b>Summary Statement</b> My project tests if organic plant fertilization methods work better than synthetic plant fertilization methods.	
<b>Help Received</b>	