



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

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| <b>Name(s)</b><br>Allyne Garcia   | <b>Project Number</b><br><br>22662 |
| <b>Project Title</b><br>Macro Nutrient Effects on Plant Growth  |                                    |
| <b>Objectives/Goals</b><br>The objective is to learn how the presence of macro-nutrients affects the early stages of plant growth.<br><b>Abstract</b><br><b>Methods/Materials</b><br>Segmented growing tray(5 segments), Cactus potting mix, 3 T of Bandini blood meal (N), 3 T Bandini bone meal (P), 3 T Potassium amino acid proteinate (K), water, ruler, paper, calculator, camara, film, seeds(sweet peas).<br>(A)Place equal amount (8 pounds) of the growing medium in each compartment of the growing tray. (B) One nutrient was added to each of three compartments, ( 3T of Blood meal for N, 3 T. of Bone meal for Phosphorous, and a dilute solution of potassium for K), and three nutrients to the compartment labeled NPK, one compartment was used as a control, and did not have any added nutrients. (C) Twenty-five (25) seeds (sweet Peas) were planted in each compartment. (D) Regular counts were taken of the number of visible plants per square; Average height of the visible plants, Height of the tallest plant per square in cm.<br><b>Results</b><br>a. Phosphorous(P) is an important nutrient in the early stages of plant growth.<br>b. The presence of nitrogen(N) without the other macronutrients may inhibit early lant growth.<br>c. The presence of Pottassium (K) in the absence of Nitrogen (N) and Phosphorous(P) resulted in a yellow-green color in the plant.<br><b>Conclusions/Discussion</b><br>The presence, lack of, or imbalance of macronutrients has an effect upon the early growth of plants. |                                    |
| <b>Summary Statement</b><br>My project is about the reaction of the macro nutrients when they are separate.   |                                    |
| <b>Help Received</b><br>Michael Rafferty-He provided the space(back yard)   |                                    |