



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Maxx G. Jennings	Project Number J1613
Project Title 40 Acres and a Mule: Soil Selection for Living the American Dream	
Objectives/Goals My project's objective is to classify the available soil types on my rural property, and then identify which of the classified types performs best for planting a family garden.	
Abstract Methods/Materials I first identified and classified-then collected (6) naturally occurring and (1) non-naturally occurring soil samples from the rural 40 acre property I live on. The samples were tested for their pH, nitrogen, phosphorus and potash levels to determine their relative acidity/alkalinity and amount of essential plant nutrients they contained. Alfalfa seeds were planted in each of the (7) soil types as a controlled test crop. After 18 days of growth the yield of each soil type's crop was analyzed. Based on this yield analysis, the classified soil types were ranked from best to least productive. This procedure was repeated three times.	
Results Soil type #2 ("Under Deciduous Trees") had the highest yield of all naturally occurring soil types, closely followed by soil type #3 ("Marsh"). Soil #2 was over 350% more productive than the least productive soil type (soil #7 "Alluvial Plain"). All the naturally occurring soils had very low nitrogen levels. However the man-made soil, soil type #1 ("Amended Alluvial/Under Deciduous Trees") had extremely high nutrient ratings and yielded 65% more plant product than the best naturally occurring soil type.	
Conclusions/Discussion Careful native soil selection can be very important to the growth results obtainable from a family garden, and therefore to the realization of the American Dream of personal independence. There was a significant difference in plant yield amongst the naturally occurring soils which was not at all predictable from the results of an off-the-shelf soil test kit. This indicates that there is much more to obtaining good plant growth results than a common home soil test kit will tell you. Carefully amending a native soil is very beneficial for plant growth and therefore recommended to the home gardener.	
Summary Statement I am trying to determine which available soil type on my 40 acre homestead will produce the greatest plant yield, therefore demonstrating which soil type is best for planting a family garden.	
Help Received My dad served as my scientific process mentor, results critic, and consulting editor to my published results. He gave me advice on how I might classify soils, structure their tests, eliminate or control for test variables, and then present the testing results in a clear manner.	