



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> Courtney McTeer; Hannah Wilensky	<b>Project Number</b> <b>J0921</b>
<b>Project Title</b> <b>Where in an Apple Orchard Is the Best Nutrient Uptake?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> Our objective was to answer the question, "Where in an apple orchard is the best nutrient uptake?" <b>Methods/Materials</b> Using a refractometer to measure the Brix (sugar content) of each tree, we took readings from twelve trees at different locations within the apple orchard. For each selected tree, we used a sap extractor to crush a leaf from ten locations around the circumference of the tree. Other materials used: -Damp Cloth -Camera -Distilled Water -Twelve zip-loc bags -Eye Dropper <b>Results</b> The trees on the north section of the orchard, nearest the forest, had the highest Brix. The trees on the south section of orchard had the lowest Brix. <b>Conclusions/Discussion</b> Our hypothesis that the trees on the north section of the orchard would have the lowest reading and the trees on the south section would have the highest, was proved wrong. We developed three theories to explain our results. First, the pine trees were fertilizing the trees in the north with their pine needles and other waste. Second, the farmer has a hap-hazard fertilization process. Lastly, the northern trees are able to drain better than the southern trees, aiding better photosynthesis for the northern trees.	
<b>Summary Statement</b> How to find the best spot to plant an apple tree using a refractometer and sap extractor.	
<b>Help Received</b> Father helped take samples, mother helped construct display, sister helped fill out application.	