



**CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY**

Name(s) Jacob R. Gibbs	Project Number J1011
Project Title The Most Superior Way to Conserve Water When Growing Grass	
Abstract Objectives/Goals This project's main goal ways to help deal with California's drought by finding ways for homeowners and farmers to use water for growing plants more efficiently. Methods/Materials Materials - 800 sq foot Marathon grass, Lab Colorimeter (FRU Precise Color Reader, WR-10), Vigoro moisture meter, manually controlled sprinkler Methods - Color, moisture, and appearance levels associated with healthy grass were experimentally determined. These levels were then used to determine when patches of grass needed to be watered, and water savings with each method calculated. Results Soil moisture levels and quantitative levels of green color both were equally good predictors of when grass needed to be watered, followed by visual inspection. All three methods used between 25 to 35 percent of the water used when setting the sprinkler on a standard timer using municipal watering guidelines. Conclusions/Discussion Both colorimetry and moisture sensors result in less use of water to grow grass when compared to visual inspection alone. This largely confirms the hypothesis that moisture sensors would be the superior method. All methods of observation are better than simply setting a sprinkler timer. Moisture sensors are the optimal method for residential lawns because they are inexpensive and easy to use, while colorimetry is likely the superior method for large scale agriculture. California could save billions of gallons per year using better watering guidelines.	
Summary Statement My project investigated the effect of using color sensors, soil moisture levels, and visual appearance to determine when grass needs to be watered.	
Help Received The staff at Southland Sod Company assisted me with watering and grass care advice.	