



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Nicole J. De Nisco	Project Number S1606
Project Title The Effects of Interrupting the Dark Period Given to a Short Night Plant with Different Colors of Light	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this project was to determine the effect of light exposure during the dark period given to a short night plant on the flowering patterns of the plant. Another goal was to discover which color, or wavelength, of light best emulated the effect of the sun on the plant.</p> <p>Methods/Materials I obtained 14 petunia plants and divided them into experimental and control groups. I had two control groups that consisted of two plants each. One control group received a dark period of 11 hours, less than the critical night length, and the other control group received a dark period of 14 hours. I exposed the experimental groups, also consisting of two plants each, to red, yellow, blue, black or white light. The experimental plants were exposed to light during the first four hours of their night period, which was controlled by putting the plants in plastic boxes at certain times.</p> <p>Results The control plants that received a dark period longer than its critical length started to flower slower than the other control plants once new buds formed. The results within the experimental group were not as clear since new buds did not have enough time to fully form and flower. All the plants flowered, but most of these were based on pre-existing buds. It appeared that the buds on the plants exposed to the white light were developing at a more rapid rate than the other plants. I am currently repeating this experiment for a longer period of time in hopes that I get results that are clearer.</p> <p>Conclusions/Discussion The petunia is a quantitative short night plant and will not flower as quickly or as fully if it receives a dark period over the critical length of 13 hours. This was proven through my experiment because the control plant that received too much darkness did not bud and flower as quickly as the plant that received the correct amount. In the experimental group new buds started forming on the plants exposed to white and blue lights, but the experiment had to be stopped before more data could be gathered. The results of my current trial, which will be included in my final project, will be more conclusive since I am running the experiment for a longer period of time and obtaining a more effective lighting system. This research is very important to the floral industry since it is often necessary to manipulate the flowering patterns of plants so they will be in season at the right time.</p>	
Summary Statement This project deals with the photoperiods and flowering mechanisms of plants by showing the effect that artificial light has on the flowering of a plant when it interrupts the dark period experienced by that plant.	
Help Received	