



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Benjamin T. Tsai	Project Number S1617
Project Title The Effect of Cover Crop Growth Time on Its Effectiveness in Enhancing Plant Growth	
Abstract Objectives/Goals The objective is to determine if the time a cover crop is allowed to grow will affect its ability in enhancing the growth of a target plant grown in the same soil afterwards. I hypothesized that the longer the cover crop is allowed to grow, the more beneficial effect it will have on the target plant. Methods/Materials This project consisted of performing the experiment using a growth container that was built consisting of 12 equal cells. The cover crops were allowed to grow for varying lengths of times, which were 0, 10, 20, and 30 day periods. Three trials were performed using the fava bean as the cover crop. Two cover crop seeds were planted in each box of the 30-day cells. 10 days later, the seeds for the 20-day cells were planted, and this continued in the same manner until all the specified growth times were completed. After the cover crops were removed, the soil was then transferred into individual containers. About four seeds of the brassica rapa plant, which served as the target plant, were planted into each container. The plants were then exposed to a constant fluorescent light to promote quicker growth. After the plants were grown for 10 days, they were removed and heights were measured from the soil lines to the tips of the stems. Results In this experiment, it was found that the longer the cover crop was allowed to grow in the soil, there would be a greater beneficial effect on the target plant grown afterwards. The soil that had the cover crop growing for 30 days promoted the most growth in the target plants. As the days that the cover crop grew decreased, the heights of the target plants in the corresponding soils also decreased. The length a cover crop is allowed to grow varies directly to its effect on enhancing plant growth. Conclusions/Discussion The results supported the hypothesis that the longer the cover crop is allowed to grow, the greater the beneficial effect it will have on plants grown in the same soil afterwards. The experiment was useful in determining one factor to regulate the use of cover crops in a more effective way. The data suggests that growing the cover crops longer will have a more benefiting effect on target plant growth, which provides useful information for the future of cover crop use.	
Summary Statement My project tests to see the effects that growth time of cover crops has on its ability to improve target plant growth.	
Help Received Father helped make growing space; Robert L. Bugg helped with background information and getting me started	