



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

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Project Title Cover Crops	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Even under the best conditions, with the most fertile soil, growing food crops in the same location, season after season, will deplete the soil of nutrients causing lower yields and eventual crop failure. When a cover crop is planted and maintained properly, the soil quality in that area should naturally increase. The improved soil should enhance the growth of the plants and increase the flower and fruit production without fertilizers or chemicals.</p> <p>Methods/Materials Three garden areas were chosen that had the same sun exposure. Each area was tested for ph value, nitrogen, potassium and phosphorus content with a commercial soil testing kit. Bed A was treated with fertilizer before planting with the cover crop. Bed B was planted with the cover crop and Bed C, the control area was left alone. Each area received the same amount of water. When the cover crop began to bloom after approximately ninety days, it was chopped into the soil as a green manure. Nitrogen deposits were visible on the roots of the crops in both Beds A and B. After waiting two weeks for the cover crop to breakdown the soil was tested again for ph value, nitrogen, potassium and phosphorus content. This was repeated again one week later. All results were then compared.</p> <p>Results My results showed that Bed B had the most improved soil quality with a lowered ph, higher nitrogen and potassium content and a constant phosphorus level. Bed A which was treated with fertilizer before planting the cover crop showed higher ph, higher potassium, reduced nitrogen and reduced phosphorus content. Surprisingly, the control bed, Bed C showed changes in the ph and nitrogen levels which went up and then returned to their original levels; potassium and phosphorus level remained the same.</p> <p>Conclusions/Discussion With this experiment, cover crops have shown the ability to improve the soil quality. This would enhance and increase the development of flowers and fruit production while continuing to maintain garden soil at it's highest level of productivity.</p>	
Summary Statement Garden soil can be improved to the highest quality for planting food crops with the use of cover crops as a green manure.	
Help Received My mom helped with maintaining the plants, and performing the experiments.	