



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Lul H. Tesfai	Project Number S1616
Project Title The Effects of Organic vs. Inorganic Fertilization on Ophiopogon japonicus and the Impact on Various Ecosystems	
Abstract Objectives/Goals I plan to examine the contrasting results in plant growth, development, and health, as well soil pH and nitrogen concentration that result from the use of organic and inorganic fertilization. My experiment will closely observe the reaction of mondo grass to various types of fertilizers. The legume based organic fertilizer will be compared to the chemical fertilizer with an exceptional amount of nitrogen solution in order to determine which method better fosters plant growth in addition to maintaining a healthy terrestrial and aquatic ecosystem. Methods/Materials 3 crates of Ophiopogon Japonicus (Mondo Grass), pH level testing kit, Nitrogen level testing kit, Miracle-Gro lawn food, Legume seeds (Clovers), Ruler. Results The highly concentrated nitrogenous inorganic fertilizer yielded the best results. The mondo grass treated with the Miracle-Gro was approximately 9 cm tall to being with, but over the span of three weeks, rose to a height of 18.5 cm. Similar growth was seen in the organically treated mondo grass, as the height managed to go from 8.5 cm tall to 12.8. Yet height growth was not solely limited to the naturally and chemically enhanced plants. Over the three week period, the untreated mondo grass grew a total of 2.15 cm. With the presence of growth came the increase in both pH and nitrogen levels. The two crates of mondo grass treated with legumes and nitrogen fertilization became slightly more acidic. In both the organic and inorganic soils, the number of hydrogen ions were offset, thus contributing to the increase in the levels of pH and nitrogen. Conclusions/Discussion According to my experiment on the comparative effects of organic verses inorganic fertilizes, inorganic fertilizers proved to instigate plant growth substantially more than organic fertilizers. In general, organic fertilizers release nutrients slowly, which results in less leaching than a one-time application of inorganic fertilizer. Organic fertilizers contain minerals that improve the physical properties of the soil, providing spaces for gas movement, root growth, and drainage. On the other hand, inorganic fertilizer provides an almost instantaneous supply of soil nutrients and can be formulated to meet the requirements of a particular soil yet at the same time can be detrimental to the environment.	
Summary Statement The comparative effects of organic verses inorganic fertilization on Ophiopogon japonicus and the subsequent impact on terrestrial and aquatic ecosystems	
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