The Analysis of Different Fertilizer Methods and the Effects of Water Quality on Zea mays

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Experimentation was conducted to investigate the viability of natural fertilizers versus traditional chemical fertilizers on Zea mays. The water quality was also tested to determine the amount of chemicals leached into the water. Water quality was measured also during the application of the natural fertilizer. This process was done to ensure natural fertilizers are viable for field application, without interrupting local ecosystems. Experimentation consisted of collecting water from local sources directly influenced by agricultural practices. The samples collected were analyzed for species of algae present, and were then grown in large quantities under different scenarios representing various agricultural practices. These scenarios include high levels of chemical fertilizer, no chemical fertilizer with a uni-culture of algae added, and two simulations using local water samples. One sample had a culture of algae added to observe the effects occurring if a uni-culture were added into the ecosystem. The second part of the experiment investigated various types of chemical and natural fertilizers on the plants' height and stem width. These methods tested application: 1) dried algae; 2) wet algae; 3) mix of chemical fertilizer and algae; 4) and only chemical fertilizer. The results of the experiment demonstrated that a pond without added nutrients could produce a sufficient amount of algae and also sustain crop growth equal to chemical fertilizers.