How Do Various Pesticides Affect Soil Health and Plant Development?

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The purpose of this project is to explore pesticide alternatives and their effect on plant and soil health. This experiment will use five independent variables: Acephate-based pesticide conventionally used pesticide, lemon juice, salt water, hydrogen peroxide, and no treatment for the control. The dependent variables are soil pH, soil nitrogen levels, leaf quality, and stem height. The successful plant is the tallest plant with the healthiest leaves to reassure that this will present a healthy harvest but the least change to the soil health. I hypothesize that saltwater treated plants will grow the tallest with the highest quality leaves and little change in soil pH or nitrogen level, but the plants treated with lemon juice (n=6) will have the poorest leaf quality and soil measurements... The results hydrogen peroxide treated plant performed the best under the aforementioned conditions to measure success because it grew the tallest of the plants at 8.5 cm, full green leaves for the ⅔ of the experiment, second least percent change in soil pH (27%), and least percent change from the starting nitrogen levels (75%). It is helpful to remember that the nitrogen levels should decrease over time as the plant grows and the soil used recommends that the pH remains between a 5 and a 7. In the future, I would like to see what would happen to the next generation of plants treated with the same soil from experiment one and the profitability of various pesticides alternatives.