Evaluation of Organic Acids for Reducing Soil Alkalinity

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We wanted to do this project to show the importance of ph levels on soil and plant health and to prove there's organic yet effective ways to solve problems. We wanted to know which organic acid would lower alkalinity effectively without damaging the nutrients. First, we measured an equal amount of black, topsoil and divided it equally between 6 plastic tubs. Then we made our ratio for barn lime to water and added this mixture to each tray of soil to make our soil alkaline. Then we labeled each tray. We added 3 Tbsp. of citric acid to the tray labeled to receive citric acid. We repeated this step for the acetic acid. The control will not receive any organic acids. Then we took soil from each tray and sent it in for an initial soil analysis. Then we planted three seeds in each hill. We had four hills. Then we placed all six trays under a grow lamp. We watered the plants equally as needed. We took observations of the plants' growth every three days for 24 days. At the end of the 24 days, we took soil and plant samples. The citric acid treated group had the highest nitrogen content. The control group had the fastest growth. The control group had the lowest pH overall. The control group had the highest amount of nitrogen. The acetic acid treated group had the highest amount of phosphorus. The control group had the highest amount of potassium. The control group showed the fastest growth, along with the best soil quality and the lowest pH levels. The plants treated with citric acid were the healthiest overall.

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