The Effects of Acetic Acid Concentrations as a Natural Herbicide

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Sustainable agriculture is more than a catchy phrase; it is the natural law approach to feeding mankind in the future without stripping the earth of its natural resources. The purpose of this project is to determine the most effective concentration rate of acetic acid along with effects to soil pH. The acetic acid used for this research is industrial strength 200 grain white vinegar. The literature review found the ideal pH of soil should be between 5.5 to 6.5 in order to grow healthy crops. The hypothesis is the 20% vinegar concentration will have the most effective kill rate with all weed types along with no impact to soil pH as determined through the literature review. However, this solution will also have the highest cost on a per acre basis. The Method used was to spray the 12 different test plots with its respective formula and record pH of each test plot. The results of my research show that the 20% vinegar concentrate solution had the best kill rate, while still maintaining a constant pH. This was consistent with the literature review. In conclusion, alternative methods of weed control exist. Best recommendations for practice is to spray a nonselective 20% vinegar natural herbicide across the field prior to planting when weeds are in the three to five leaf stage and the temperature is above sixty five degrees. However, the cost per acre as seen in table 13 are prohibitive to practical application.

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