Effects of Road Runoff on Arugula

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Many row crop fields are near highways, dirt roads, and section lines. This leaves the crops at risk for being contaminated by pollutants from road runoff. The purpose of our project was to test the direct and immediate effects of road runoff on a crop, specifically Arugula. Salt, oil, and antifreeze were applied to post emergent Arugula. These groups consisted of four plants each, alongside a control group. The effects were observed over three weeks and the final masses of plants were measured. The plants contaminated with salt had the lowest average final mass at 1.75g, followed by antifreeze at 2.78g, and oil at 4.45g. All of these final masses were much lower than the control group that had an average final mass of 12.85g. All of these results were added to an ANOVA test resulting in a P-value of 0.0016. The results of the experiment show the detrimental effects of road runoff. Section lines should not be traveled by cars leaking liquids and they should not be salted because with small ditches or no ditches at all, they are at a high risk for being polluted with road runoff. Some future research could include incorporating the runoff pollutants into the soil before planting, or applying pollutants to pre emergent plants.

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