Influence of Vegetated Coverage on Surface Runoff Losses of the Insecticide, Bifenthrin

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The title of this project is The Influence of Vegetated Coverage on Surface Runoff Losses of the Insecticide, Bifenthrin. Bifenthrin is a synthetic pyrethroid insecticide that is most commonly found in ant killer. Although it is very effective is deterring mischievous pests, it is highly toxic to aquatic organisms and fish, as it immobilizes their nervous system. Because of the infestation of red imported fire ants, bifenthrin is a household item in Louisiana, but it is frequently used in large amounts on incompetent land that is threatening to the aquatic ecosystem. I planted 12 plots of centipede grass, then used a dethatching rake to achieve my desired coverages of 0,50, and 100 %. I then placed the bifenthrin chemical on top of the plots by following the manufacturers label (1oz.). I ran a rainfall simulator to mimic the effects of runoff, then collected the rain water in buckets to analyze in the lab. I tested for the amount of bifenthrin found in soil and water, the overall volume of water, and the amount of solids found. Using GC/MS, I found time until runoff, volume of water, total sediment losses, and bifenthrin in water to be extremely statistically significant, but because of a lack of trials, bifenthrin in water is proven to be reserved for judgement. One thing to learn from this experiment is how to solve the problem of chemicals escaping the soil and contaminating the waters, which could be resolved by riparian strips.