A Comparative Study on Natural Pesticides for Potatoes

Steinwehr, Mya

Purpose: To compare the effects of commercial and natural pesticides on the growth and sugar content of Red Norland Potatoes and White Pearl Potatoes. Secondly, to determine the efficacy of the products on Green Peach Aphids and Black Cutworms. Finally, to observe the inhibitory properties of the products on White Mold. Procedure: 500 potato plants, 250 of the Red Norland variety and 250 of the White Pearl variety, were grown and sprayed with each pesticide to compare the potatoes' yields and sugar content (Brix). Ingestion: Sprayed potato leaves with a given pesticide along with either one Green Peach Aphid or one Black Cutworm. This test was conducted to observe the mortality rates of the insects. Direct Contact: Sprayed 10 ladybugs with a given pesticide and observed the mortality rates. Pathogen Sensitivity Study: This test was performed to observe the inhibitory properties of the pesticides on White Mold. Conclusion: In the test plot study, Green Tea showed to produce the highest yields in the potatoes, and all of the natural solutions performed statistically better at increasing the yields of the potatoes than control. For the insect study, Green Tea and Grape showed the fastest mortality rates along with Belay, the chemical insecticide. However, Belay killed all of the beneficial insects, ladybugs, while the natural solutions did not kill any. For the Pathogen Sensitivity Study, Blueberry and Grape performed statistically better than the chemical fungicide, Headline, at inhibiting the growth of White Mold. Overall, considering every aspect of my project, I feel that all of the natural solutions I tested proved to show a great potential of becoming safe, natural pesticides in the potato industry.

Awards Won: