The Beetles: Examining the Effect of Isolated Supplementation in Cigarette Beetles to Optimize Nutrient and Biomass Transfer via Consumption

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Insect agriculture provides a new way of accumulating macro and micro nutrients for organisms to feed on without having the drawbacks of traditional agriculture. In order to explore the capabilities of this new agricultural alternative, isolated supplementation was used to answer questions about the efficiency and nutritional value of farmed insects. To test this idea, Lasioderma serricorne were fed a traditional lab diet which was supplemented with various small-sized amounts of Vitamins D3 and B6, Calcium, and Magnesium. Two generations were produced, one generation being supplemented and the other being unsupplemented descendents. These insects were then measured with a microscope and their lengths were averaged. The amount of reproduction that occurred was determined by a percent increase from the first generation. An immuno-assay kit for Pyridoxine was used on the collected samples of Vitamin B6-supplemented beetles and averaged their bio accumulated concentration. Vitamin B6 and Magnesium resulted in increased body size. Vitamin D3 and Calcium had increases in reproductivity while B6 and Magnesium showed decreases. Human and animal consumers of enriched insects would benefit from their accumulated biomass and higher nutrient count all while suppressing the needs for traditional agriculture and its excessive use of water, land, and energy.