Test of cricket frass suitability as a fertilizer for canola

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Insects, in particular crickets (cricket meal), *Gryllodes Sigillatus*, are being hailed as the animal protein of the future due to their sustainability and environmental friendliness. With competitive amounts of protein compared to conventional sources (canola, soybean etc.), the industry has experienced a boom in investment and production as the livestock and pet feed industries see a rise on insect meals being added to the market. A by-product of this protein production is cricket frass (mixture of insect manure and shed exoskeletons) which has shown promising evidence of being an effective, clean fertilizer. A pot study was conducted to test the impact of cricket frass on soil health indicators, as well as growth and seed yield of canola grown under the controlled environmental condition. Canola (c.v. Westar) were grown with 4 different rates of frass within the two soils with high or low levels of organic matter and nutrients over 82 days. These rates were 0% mix (control), 2.5% mix, 5% mix, and 7.5% mix (percentages based on soil volume). All treatments were arranged in a randomized complete block design (RCBD) with 4 replicates. Yield was measured in dry seed weight, and soil and plant material were analyzed for total nitrogen, nutrient content, and water retention. All pots were watered daily to maintain soil water content at optimal level for crop growth. The mean dry seed weight of all groups containing frass were significantly greater than that of the control group, especially in groups that received 2.5% and 5% mix for both soils. Application of cricket frass at 2.5% and 5% also increased soil extractable nutrients content, especially nitrate-N and Olsen-P. Analysis of canola aboveground and seed samples are in progress. This study shows that the use of frass as a fertilizer is effective to improve soil nutrient availability and canola productivity.