An Assessment of the Impacts of Organic Mulching Materials on Pak Choi (Brassica rapa Chinensis) Plant Performance and Growth

Balauro, Carl Daniel (School: Fa'asao Marist High School)

With climate change continuously imposing detrimental effects towards the environment, identification of solutions increasingly necessitates. One potential solution is soil sequestration. Implementation of a restorative land use practice like mulching on agricultural soils can reduce atmospheric CO2 , while having positive impacts on food security, agro-industries, and water conservation. With that, the objective of my research is to assess the impacts of different organic mulching materials on Pak Choi (Brassica rapa chinensis) performance and plant growth. Assessment will be set into different categories: canopy coverage, crop yield, and soil temperature conservation. Based on previous studies, it is hypothesized that both organic mulching materials will positively impact the plants due to their symbiotic effects with the soil. 108 Pak Choi Plants were allocated into 9 blocks (12 plants each) with 3 trials for each treatment (soil [control group], woodchips, and grass.) A Smart-Drip Irrigation System, along with a randomized block method was also implemented to avoid skewed results. Over the span of six weeks, blocks were recorded twice a week for canopy coverage, soil temperature, and crop yield weight. Results demonstrate that grass mulch was able to produce optimum yield and suppress weed growth, while being able to conserve water. Contrary to that, my hypothesis was proven partially wrong with the woodchips imposing an allelopathic effect to the plants. Nonetheless, the success of this research proves the existence of a no-risk climate solution with big co-benefits both economically and ecologically.

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