COOPERATIVE EXTENSION
UNIVERSITY OF HAWAI'I AT MĀNOA
COLLEGE OF TROPICAL AGRICULTURE AND HUMAN RESOURCES

Biochar Application to Improve the Growth and Yield of Hamasaki Eggplant

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Biochar is a promising soil amendment for sustainable agriculture and an environmental friendly material for climate change mitigation. Biochar is the product of burning an organic waste at high temperature (300-700^{O}C) with limited or no oxygen). Recent studies have shown that the application of biochar to soils can increase soil water holding capacity, aggregation, and cation exchange capacity (CEC), release plant nutrient to the soil, retain nutrient and prevent nutrient loss/leaching, reduce greenhouse gases emissions, promote soil beneficial microorganisms, remove heavy metals and organic pollutants from soil and water, increase plant resistances to diseases and enhance the plant growth, and increase soil pH and reduce Aluminum (Al) toxicity in acid soils.

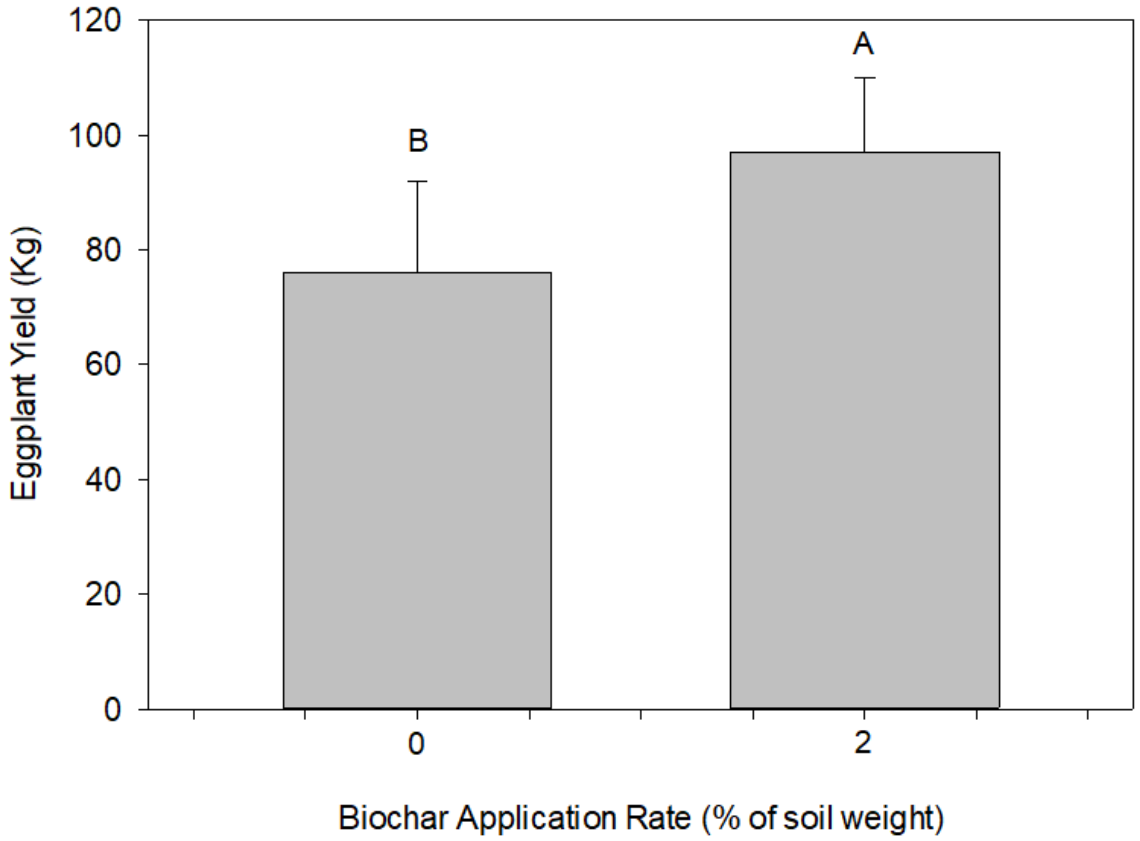

Figure (1): The effect of biochar application (0 and 2% of soil weight ~ 10 ton/acre) on the yield of eggplant crop, Hamasaki Variety.

Please note:

1) Eggplant “Hamasaki variety” seedlings were transplanted after a week of the biochar incorporation into the soil.
2) The application of biochar at 2% of soil weight is equal to 10 ton/acre of dry biochar.
3) The total eggplant yield is for 6 harvests between, Oct. 28/2019 and Feb. 17, 2020.
4) Eggplant harvest is still on-going, additional fertilizer “Tankage” was added after trimming the plant and weeding the plots. Data will be updated periodically.
5) The first two harvests did not show a significant difference between the treatments (biochar application and control). It’s expected since the biochar application takes time to improve soil properties and nutrient availability for plant uptake.
6) Higher application of biochar may lead to decline in crop yield. Since the biochar has a very large surface area, which allows the nutrient to attach to it (makes it not immediately available for plant uptake).
7) The data did not show a significant difference between the treatments (biochar application) on number of fruits/plant or the fruit’s quality.