Correcting Nutrient Deficiencies in the Corraline Soils of the Marshall Islands with Local Organic Materials. (S04-deenik155441-Poster)

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Abstract:

The coralline soils of atolls suffer from multiple nutrient deficiencies that severely limit crop growth. This study was conducted to assess the nutrient status of the soils of the inhabited atolls within the Marshall Islands (MI), and to determine what local materials could be used as a corrective measure. We collected and analyzed soil samples from 25 atolls, and evaluated soil test results with a missing element pot study. We determined the chemical properties of chicken manure, fish meal, copra cake, and 5 native plants and evaluated their nutrient supply capacity in a series of pot experiments. Soil tests revealed that the MI soils were severely deficient in K (0.12 cmolc kg-1) and marginally deficient in Cu (0.13 ug g-1). The missing element study showed that the soil was deficient in K, S, N, P, and Cu. In a pot study, cabbage plants grew as well in soils amended with chicken manure and copra cake as they did in soil treated with chemical fertilizers. In a rate experiment with Vigna marina, adding 14.4 Mg ha-1 leaves supplied 350 kg N ha-1 to 5 week-old corn plants. V. marina and copra cake show promise as sustainable soil amendments for vegetable production in the MI.

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Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 2:00-4:00 pm
Poster Board Number: 1729

Keywords:
atoll soils, organic amendments, vegetable production, soil nutrient deficiencies