Evaluating Limu Compost as a Soil Amendment

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As commercial fertilizer costs increase with oil prices, a wide range of food producers in the Pacific region have become interested in locally available by-products that are suitable for use as agricultural inputs to improve crop health and productivity. Invasive algae is available in large quantity and can be an important source of K and other plant nutrients. However nutrient content depends on species (Table 1), and potential salinity and other concerns need to be addressed.

University of Hawaii, Mālama Maunalua and others are working together to achieve multiple objectives including:
• determine mineral nutrient content of algae species grown on different locations;
• estimate acceptable loading rates for salts and metals from the algal applications for selected Hawaiian soils; and
• optimize processing procedures for salt reduction and maximum nutrient content.

As a first step in converting algal biomass to a beneficial resource, composts are being made from these "weeds" (figure 1). Land applications of such composts apparently give good growth (figure 2).

Table 1. Nutrient analysis from Maunalua Bay limu species. Values are means of at 4-10 analyses ± standard error of the mean. Note the significant variability in potassium (K) among species.

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Species	N	C	P	**K**	Ca	Mg	Na
Aravinvillea amadelphia	0.9 ± 0.1	16.7 ± 0.9	0.06 ± 0.001	**0.2 ± 0.04**	16.9 ± 1.7	1.5 ± 0.1	2.0 ± 0.2
Acanthrophora spicifera	1.14 ± 0.17	20.0 ± 01.5	0.04 ± 0.004	**4.2 ± 1.9**	8.8 ± 1.6	1.5 ± 0.07	3.2 ± 0.1
Gracilaria salicornia	0.58 ± 0.13	15.7 ± 2.6	0.05 ± 0.004	**10.4 ± 2.6**	6.1 ± 1.8	1.1 ± 0.2	3.0 ± 0.2

Figure 1. Compost is being made from algae along with tree trimmings.

Figure 2. Radish grown on a field amended with algal compost.