



HAWAII COOPERATIVE EXTENSION SERVICE

College of Tropical Agriculture and Human Resources

University of Hawaii

GENERAL HOME GARDEN SERIES No. 6

COMPOST FOR THE HOME GARDEN

by Wade W. McCall and Yukio Nakagawa*

Home gardening in Hawaii requires good management for good yields, and that requires adequate organic matter in the soil, conservation of moisture, removal of waste products, and good physical condition of the soil. All this can be achieved by using composts.

Composting is a means of disposing of waste materials, adding organic matter to the soil, and increasing the water-holding and nutrient-holding capacities of the soil. Composts may be made of any type of material that can be decomposed by microorganisms; leaves, grass clippings, weeds, seaweed, peat, water hyacinths, garden refuse, kitchen wastes, cow manure, chicken manure, green legumes, cane trash, bagasse, pineapple trash, straw, and spoiled hay are excellent such materials. Other materials that may be used, but which are less desirable, are wood chips, sawdust, wood shavings, and tree bark. Green succulent materials decompose more rapidly than mature dry plant residues due to a higher nitrogen level, a smaller percentage of resistant components, and the presence of more moisture.

Making the Compost Pile

Make the compost pile of convenient size, depending upon the available space and supply of organic residues. A pile 6 to 8 feet wide and 3 to 5 feet high is convenient; the lengths will depend upon the factors mentioned above. The top should be nearly flat with a shallow depression in the center to catch and hold water. During wet, rainy weather, the compost pile may have to be protected to prevent it from becoming too wet. The compost may also be made in barrels, on platforms, in pits, in boarded-up enclosures, in wire enclosures, or in any other way so that it may be turned at periodic intervals to provide aeration and so that moisture may be added.

A satisfactory method of building the compost pile is to make a layer of material about 1 foot thick, moisten thoroughly with water, and gently pack.

Then spread a layer of manure or sewage sludge 4 to 6 inches deep over the layer of wet material. A layer of soil 2 to 4 inches thick may be substituted for the manure or may be spread over the manure. Spread any plant nutrients to be added over the manure or soil layer. Repeat this process, alternating the layers of organic residues and manure until the compost is of the desired height. A compost pile made in this manner will begin to heat (decompose) in 2 to 3 days. Watch it carefully during this period and do not allow the pile to become too wet or too dry. In 3 to 4 weeks, turn and mix the pile to insure uniform mixing of the residues. Repeat this until all characteristics of the original material can no longer be identified. In Hawaii, this usually requires 2 or 3 mixings. Compost made in this manner is an excellent source of organic matter for enriching soils for garden crops, and it is especially beneficial for the sandy soils of Hawaii.

Often the home gardener would like to have compost decompose more rapidly, and this may be accomplished by shredding all materials to about 1 inch or less in size to expose greater surface area for decomposition. Shredding machines or rotary mowers provide good results.

Mix all materials together uniformly rather than in layers; dampen the mixture as the pile accumulates. It should begin to heat in 24 hours. Turn it frequently to insure adequate aeration, until satisfactorily decomposed. Turning every 3 days for 2 to 3 weeks generally gives good results in Hawaii. Special compost activators are not needed when manure or soil is used in making the compost if adequate moisture and nutrients are present in the compost mixture.

Nutrients Accelerate Composting

Microorganisms are small plants that require adequate supplies of nutrients to function properly. If these are absent the composting process will be slow and often unsatisfactory. Nitrogen is needed

in the greatest quantity. When manure is used, no additional nitrogen is required; but if nitrogen is needed, the use of ammonium sulfate, urea, tankage, or similar nitrogen carrier may be used. Organic residues are low in phosphorus, and this element may be added by the use of superphosphate, treble superphosphate, rock phosphate, bone meal, or similar material. Potassium, also deficient in most organic residues, may be added by the use of potassium chloride, potassium sulfate, wood ashes, mill ashes, or similar material. During decomposition the compost may become very acid; ground coral or hydrated lime may be used to neutralize this acidity. The amounts of nutrients to add for a compost pile 5 x 5 x 5 feet (125 cubic feet) are 10 pounds nitrogen (48 pounds ammonium sulfate), 3½ pounds available phosphoric acid (8 pounds treble superphosphate), 7 pounds potash (12 pounds potassium chloride), and 32 pounds ground coral. If wood ashes, mill ashes, or neutral salts of nitrogen are used, then ground coral is not needed.

How to Use the Compost

When the compost is ready for use, apply 45 to 50 pounds per 100 square feet soil and mix thoroughly with the top 6 to 8 inches of soil. The soil should

be moist, but not wet, when the compost is added. Mix with a rotary tiller, spading fork, or similar tool. Also add regular fertilizers for the crop to be grown because the compost is primarily a means of adding organic matter to the soil rather than a fertilizer material. It will improve the physical properties of the soil and make it easier to grow better plants; it will not supply the necessary nutrients to the crop.

Composting is a limited and expensive operation. It requires a large amount of labor and time to produce good compost and to thoroughly mix the compost with the soil. However, it does provide considerable personal satisfaction as a hobby, as a means of exercise, and as a means of disposing unsightly, excess, organic wastes.

*Soil Management Specialist

NOTE: The use of trade names is for the convenience of readers only and does not constitute an endorsement of these products by the University of Hawaii, the College of Tropical Agriculture and Human Resources, the Hawaii Cooperative Extension Service, and their employees.

Reprinted June, 1980—2M