



HAWAII COOPERATIVE EXTENSION SERVICE

College of Tropical Agriculture and Human Resources

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GENERAL HOME GARDEN SERIES No. 23

SOIL MANAGEMENT FOR HOUSE PLANTS

by Wade W. McCall*

An "ideal" soil for house plants is one that has adequate and lasting fertility, has good structure so that air and water penetrate readily, retains moisture, is free of weed seeds, insects and disease organisms, and has suitable pH for optimum growth of the plant to be grown.

Where To Obtain Soils

If you have your own source of soil, such as from your home grounds, you will know its characteristics and needs to produce optimum plant growth. Many home owners do not have a satisfactory source of soil so must purchase what is needed. Purchasing "top soil" and treating this soil to produce a desirable soil is one possibility. This may be done by composting the soil with leaves, grass clippings, manure and similar materials.

A good mixture may be made by mixing 7 parts of compost or good garden soil, 2 parts of organic matter such as peat or well-rotted leaf mold, 1 part of well-rotted manure and 2 parts of black sand or cinders one-eighth inch or less in diameter. There are many other mixtures such as one part silty clay loam, one part peat and one part black sand, etc., that may be used.

There are many potting soils available in the markets which are suitable for use. When using these materials be sure to follow the instructions for use found on the container.

Sterilize Soils Before Use

All ingredients should be thoroughly and uniformly mixed before use. The soil should be sterilized before fertilizers and lime or sulfur are added. Sterilization kills all the weed seeds, disease organisms, and insects in the soil. Use of unsterilized soil will increase the problems from these pests.

Sterilization is accomplished by bringing soil temperature to 180°F for 30 minutes. Sterilization also may be accomplished by treating the soil with

methyl bromide or ethylene dibromide. The use of chemicals such as methyl bromide is controlled by law and requires a permit from the State Department of Agriculture for purchase and use.

Mix Fertilizer and Soil Amendments

The sterilized soil should be mixed with fertilizer materials and soil amendments and placed in a sterile container before use for potting.

Treble superphosphate, bone meal or similar phosphorus materials are added at 2 to 3 pounds per cubic yard (2 to 3 teaspoonsful per 6 inch pot) to meet plant needs for this nutrient. Lime is added at 2¼ pounds per cubic yard (2¼ teaspoonsful per 6 inch pot) for each ton required to raise the pH one unit. Sulfur is generally added at one pound per cubic yard (one teaspoonful per 6 inch pot) to reduce the pH one unit. "Complete" fertilizers such as 10-30-10, etc., may be added if needed. All soils should be tested, then fertilizers and lime or sulfur added as recommended. Your County Agricultural Agent can assist you in getting your soil tested.

Potting the Soil

Potting is easier if the soil is at the correct moisture content. This is indicated by the soil being just moist enough to hold together when squeezed tightly.

Pots should have adequate drainage at the bottom. The hole in the bottom of the pot should be covered with a piece of broken pot, gravel, coarse organic material or other materials that will allow free passage of water without the soil coming through. Place a layer of soil in the bottom of the pot, then place the plant in the middle of the pot and add more soil to fill in around the roots. The pot should not be filled completely but only to one-half to one inch from the top to allow for watering. The soil should be firmed around the plant, but not packed too tightly.

When plants become pot bound they should be repotted to the next larger sized pot. Remove the plant from the old pot by first moistening the soil and then tapping the rim of the pot on the edge of a table, bench, etc. The new pot is provided with drainage and a layer of fresh soil as above. The "shoulders" of the compact mass of soil and roots may be broken off and the top loosened up to promote aeration and remove any growth of algae. (The plant is placed on the soil and fresh soil packed firmly around the roots.) Take care not to injure the plant roots severely.

Watering the Soil

Lack of water results in reduced growth, shedding of leaves, and unsightly plants with dull unattractive foliage. Too much water results in poor growth and rotting of roots.

Temperature, humidity, light, type of plant, age of plant, soil characteristics, rate of growth and size and type of container all affect frequency and amount of water applied. The condition of the surface soil indicates when water is needed. Add water when surface soil is dry. Add sufficient water

that the entire volume of soil is wet and water drains out of the bottom of the pot.

Water is added by filling the space left at the top of the pot for this purpose.

Applying Fertilizers

Plants should be given additional fertilizers as their appearance indicates the need. Apply fertilizer to the soil surface exercising care to avoid getting fertilizer on leaves. Fertilizer may "burn" the leaves causing an unsightly plant. Slow release fertilizers are excellent for house plants. All soluble fertilizers used in solution are also excellent sources of plant nutrients. Use these materials according to instructions on the containers.

***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.

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