

MAKE YOUR OWN MIXES?

In recent years a number of growers in Hawaii have been using some of the commercially available potting mixes. Most of these are based on the peat-lite, or cornell mixes which are uniform, in most instances, light weight, free from insects and diseases and produce excellent plants.

However, research at the Penn State Soil and Forage Testing Laboratory, the Pennsylvania State University, University Park, indicated that in a group of 20 commercial home-garden potting mixes tested, 1 out of 5 were capable of killing or injuring plants.

Among the results:

1. Four out of 20 samples had excessive soluble salts. The excessive readings were 320, 380, 450 and 600. A reading greater than 180 is likely to cause plant injury.
2. Three out of 20 contained excessive nitrogen, with readings of 304, 404 and 404. A reading greater than 250 is excessive.
3. Nine out of 20 contained pH levels under 5.5. Penn State researchers recommend a pH range of 5.5 to 6.8. Three of the mixes had readings of 4.4, 4.5 and 4.5. The acidity of these readings would affect the availability of various fertilizer elements.
4. Phosphorus levels were low in 19 of 20 sampled. The average for the 19 samples was 88 pounds per acre. Four of the nationally known brands contained only 10 pounds phosphorus per acre. Penn State recommends 250 to 900 pounds per acre.
5. Ten out of 20 had low potassium levels, while 8 had excessive readings.

The Penn State researchers also offer some comparative findings. When 8 commercial potting mixes were checked at the laboratory 20 years ago, half had excessive soluble salts, and 7 out of 8 had pH readings of less than 5.3. Of the products recently tested, a firm labels one of its products as "house-plant potting soil" and another as "extra rich potting soil". Researchers made the following analysis:

		Soluble			
	pH	Nit-N	Salts	Phosphorus	Potassium
regular	6.4	55	12	36	0.97
extra rich	6.3	68	18	44	0.56

The researchers concluded that many firms do not have their soil mixes analyzed regularly and that growers should investigate commercial potting mixes as a contributor to plant problems.

These results point up the need for growers to monitor their growing media by having it checked periodically by a soil testing laboratory and not just assume that since it was prepared commercially that it must be good for growing plants.

Also these results and the fact that as the demand for these mixes went up so did the price, it may be cheaper to make your own mixes rather than purchase them. One widely used mix is a peat-lite mix, so called because it combines sphagnum *peat* moss and *vermiculite*.

The formula for the peat-lite mix is:

<i>Materials</i>	<i>Amount per cubic yard</i>
Sphagnum peat	0.5 cu. yd. (11 bu.)
Horticultural vermiculite	0.5 cu. yd. (11 bu.)
Ground limestone	12-15 lbs.
Superphosphate 20%	2-4 lbs.
Fritted Trace Elements	2 oz.
Wetting Agent	3 oz.

There are many variations to the above formula. For example, perlite may be substituted for some of the vermiculite. Fertilizer may be added such as 1 lb. of calcium or potassium nitrate (or, preferably, 6-8 oz. of each per cu. yd.). African vermiculite may be used in place of domestic vermiculite. If so, then reduce the amount of limestone to 6-8 lbs. and use the calcitic instead of the dolomitic form.

If mixing with a hand shovel or a front end loader, spread the peat moss out on a concrete slab. Wet lightly with warm water and wetting agent. Cover the peat with the proper amount of vermiculite. Set up a sprinkler system to wet the materials. An oscillating lawn sprinkler will do a good job. After wetting, add the lime, superphosphate and trace elements and (if any) fertilizer. Mix thoroughly.

Larger amounts can be made in concrete mixers. However, do not let the mix rotate for long periods of time as it may form "pellets," especially if the peat moss is wet, and the vermiculite structure is damaged. Also excessive mixing can cause breakdown of the structure of the components as when cinders and peat moss are mixed.

A mix that has performed satisfactorily in tests here at the University of Hawaii is as follows:

Components

Cinders (volcanite or black cinders) 1 part
Organics (wood shavings, peat moss, redwood
composts, etc.) 1 part

Additives

	<i>per cubic foot</i>	<i>per cubic yard</i>
Lime (calcium carbonate)	6 oz.	10 lbs.
Treble Superphosphate (0-44-0)	2 oz.	3½ lbs.
Fertilizers (if desired)		
Osmocote (18-6-12)	4 oz.	7½ lbs.
or		
10-10-10	5 oz.	8 lbs.

NOTE: If fresh wood shavings are used extra nitrogen will need to be added.

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