

Peat-Lite Mixes

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Basically composed of German or Canadian sphagnum peat moss plus vermiculite or perlite "peat-lite" mixes are the result of four years' research efforts at Cornell University.

Primarily investigated as a media for starting bedding and vegetable transplants the versatility of the mixes has enabled growers to utilize them in other areas where controlled plant growth is desired.

Failure of the University of California system for container grown plants to find wide acceptance with Eastern growers is due to two things: the proper grade of sand is difficult to obtain and the success of the mixture is dependent on using the proper grade sand; second, the mixture of 50% sand and 50% peat moss by volume is heavy. A cubic foot of dry sand weighs about 100 pounds.

The ingredients for "peat-lite" mixes are readily avail-



Figure 1: The ingredients for peat-lite mixes are available at any time. They can be mixed easily with large equipment for bulk handling.

able. Number 2 horticultural perlite and number 2 horticultural vermiculite (Terralite) can be obtained from jobbers. German or Canadian type sphagnum peat moss is also available. Perlite and vermiculite weigh between 6 and 8 pounds per cubic foot.

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Mixes

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Two basic mixes known as Peat-lite Mix A and Peat-lite Mix B have evolved. Both mixes utilize volume measurements.

Since Canadian or German sphagnum peat moss has an acid pH it is necessary to add limestone to the mixes. Superphosphate must also be added. Regardless of the fertilization program followed, both materials must be added before the crops are planted.

The following are "cook-book type" recipes suggested for trial purposes. Amounts are given for a cubic yard and also for two bushel quantities. The amounts given for the two bushel quantities are approximate.

Peat-lite Mix A	1 cu. yd.	2 bushel
Shredded sphagnum peat moss	11 bushels	1 bushel
No. 2 Vermiculite (Terralite)	11 bushels	1 bushel
Ground limestone, preferably dolomitic	10 pounds	1 pound
20% superphosphate, powdered	2½ pounds	¼ pound
5 - 10 - 5 fertilizer	12 pounds	1 lb. 2 oz.
OR (Do not use both)		
Ammonium nitrate	3 pounds	5 ounces

The above materials should be mixed thoroughly. If the peat moss is very dry, a small amount of water may be added to reduce the dust problem during mixing.

There is approximately 5-8% available potassium in the vermiculite. This will supply sufficient potash for most crops when the ammonium nitrate is used. Additional potash can be supplied by liquid feeding. The fertilizer materials added will last about 5 weeks under good growing conditions (April 17 to May 24). Nitrogen will then run out quickly and liquid feeding must be followed.

Peat-lite Mix B	1 cu. yd.	2 bushels
Shredded sphagnum peat moss	11 bushels	1 bushel
Horticultural perlite	11 bushels	1 bushel
Ground limestone, preferably dolomitic	10 pounds	1 pound
20% superphosphate, powdered	2½ pounds	¼ pound
5 - 10 - 5 fertilizer	16 pounds	1½ pounds
OR (Do not use both)		
Ammonium nitrate	4 pounds	6 ounces
plus muriate of potash	½ pound	1 ounce

This is the same as Mix A except horticultural perlite is substituted for the vermiculite. If ammonium nitrate is used then potassium must also be supplied since perlite contains no available potassium for plant growth. Further applications of potash must also be supplied during the growth of the crop.

When using Mix A or B with all the fertilizer added, it is necessary that the materials be thoroughly wetted prior to planting. This is best done by watering thoroughly, waiting 30 minutes and then watering again. After the seedlings are transplanted then water again and continue watering only as needed. Do not overwater.

Either of the above mixes can be used without adding the 5-10-5 or ammonium nitrate. Simply use the peat

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moss, the vermiculite or perlite plus the limestone and superphosphate at the rates given. Since no nitrogen is present, a starter solution such as 20-20-20, 14-28-14, 15-30-15 or similar completely soluble fertilizer should be used at the rate of $\frac{1}{2}$ to 1 teaspoonful per gallon of water or $\frac{1}{2}$ to 1 pound per 100 gallons of water. This fertilizer solution should be applied at each watering or as often as is needed dependent on plant growth.

When all of the fertilizer is added before planting growth is rapid and unchecked. Trials have shown that petunias and tomatoes are ready for sale 5 weeks after transplanting when grown during late April and early May. At this time, the crops may need additional feeding since the original amounts added may have run out dependent on the frequency of watering. Liquid feeding as described above can then be used.

Some growers have top-dressed with dried blood at this time and have noted excellent results.

Other cultural conditions such as temperature control, ventilation, etc. after transplanting will be the same as for a soil grown crop. Growers will find that plants in the mixes will generally go longer between waterings than those in soil. Better root growth in the mixes also results in less shock at the time of transplanting to the garden.

Although the mixes have been successfully used without steam sterilizing, this does not mean that they are resistant to disease organisms. The mixes can easily become contaminated if sloppy handling methods are used. When preparing the media use a clean area for the mixing process. If there has been a history of damping off, then use a formaldehyde or chlorox drench as a decontamination procedure. Wash all tools etc. with hot water and then drench them also. Follow sanitation practices in the growing area.

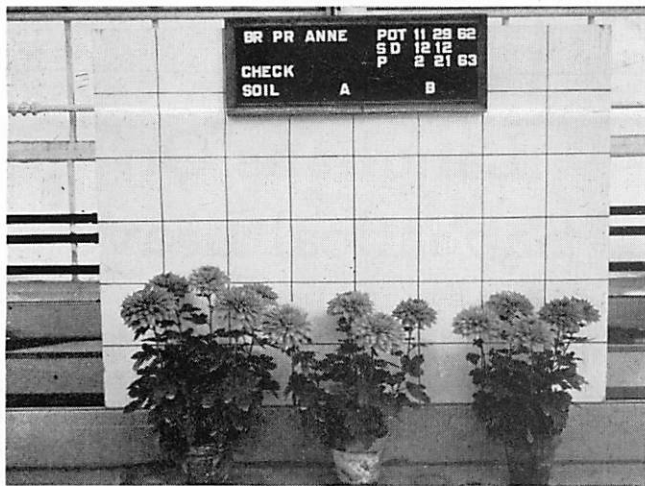


Figure 2: Bronze Princess Anne grown in soil, Mix A and Mix B. Potted November 29, 1962; photographed February 21, 1963.

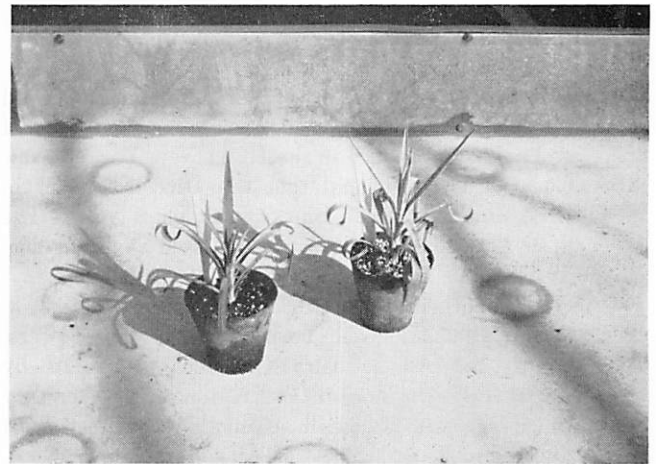


Figure 3: Carnation cuttings in 3-inch peat pots. Left Mix A, Right Mix B. Prop 2-8, potted 3-5, photo 3-16-63.



Figure 4: A series of foliage plants potted October 18 to Mix A left: *Diffenbachia picta*, *Peperomia*, *Emerald Ripple* and *Dra-cena Marginata*; Mix B right, *Peromia*, *Emerald Ripple* and *Variegata*.



Figure 5: Tulips in soil left, Mix A and Mix B right. Potted November 13 and placed in 50° refrigeration. Placed in 50° greenhouse February 28. Photo March 16. Notice greater height of tulips in mixes.

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The major emphasis of the studies that resulted in the development of the peat-lite mixtures was toward bedding plants and spring transplant production. Because of their standardized nature the mixes may prove superior to soil in other areas of plant production.

In the following descriptions the information is offered for *Trial purpose only* since extensive tests have not been run in these applications of the media.

Generally the basic mix was used with limestone and superphosphate added. Specialized liquid or dry feeding programs were then followed.

Chrysanthemums—Production of chrysanthemums in 6-inch pots lends itself well to the media. In the photograph (Fig. 2) Bronze Princess Anne was potted 5 cuttings to a 6-inch pot November 29, 1962. Long days were given Nov. 29 to Dec. 12. The photograph was taken February 21, 1963. The plants were fertilized weekly with 1 pound of 20-20-20 to 100 gallons of water alternated with potassium nitrate at the same rate. This rate of fertilization was satisfactory for winter production but would be insufficient for spring, summer, and fall production.

Do not use the media in styrofoam pots as they are too light in weight. Clay pots are best.

Carnations—For production of young plants to be direct benched in May or June, the mixes provide an excellent growing media (Fig. 3). Do not use less than a 3-inch peat pot. Smaller pots will not have a sufficient volume of material to provide for good growth. Use either Mix A or Mix B with one-half the recommended amount of 5-10-5. Follow up with a regular liquid feeding program.

Foliage plants—These plants have long been grown in more types of artificial media than any other florist crop. Both mixes have been successfully used (Fig. 4). Under prolonged, cloudy weather conditions, Mix A may have the tendency to stay too wet. Watch the watering under these conditions.



Figure 6: Ace lilies potted in 5-inch pots January 3, 1963 in left, soil; center Mix A; right Mix B. Photographed 3-16-63.

Bulb stock:—Fig. 5 shows tulips that were potted in soil, Mix A and Mix B. The tulips in the mixes were slightly taller than those in the soil.

Ace lilies are shown in Fig. 6. These were potted January 3, 1963 in 5-inch clay pots and placed in a 60° night 70° day temperature greenhouse. At the time of the photographs plants were equally good in all three media.

Other crops: African violets have responded well to the mixes, particularly mix A. Some growers have used the basic mix A with superphosphate and limestone added as a media for direct rooting of geranium cuttings in 2½ inch peat pots.

Vegetable crops that are normally transplanted, have produced excellent growth in both mixes and when planted to the field.

Poinsettias have been successfully grown using both mixes. Clay pots are recommended both for better drainage and also weight.

In conclusion, we might say that the mixes are not destined to result in the elimination of soil as a growing media. They will not make a poor grower a good grower, nor are they a panacea for all of the growers production ills. It has been shown both commercially, and research wise they have a definite place in the production of florist and vegetable crops. They are worthy of trial in your production program.