

Progress Report: Bark as a Peat Substitute in Bedding Plant Soil Mixes¹

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Plants may be grown in many types of materials and each grower has his own specific "soil" mix that he uses. In general, most of the mixes include peat moss in some proportion and since the price of peat moss has risen substantially in the past few years, growers have been forced to look for other materials as a media amendment. A research project was designed to evaluate the effects of high phosphorus levels on the growth of four major bedding plants grown in three media. The preliminary evaluation revealed that "Arizona bark" (approximately 90% Ponderosa Pine) cannot be completely substituted for sphagnum peat moss. The study continued this past summer to determine if this particular bark product can be used in small proportions as a substitute for peat moss in a growing media.

Four "top" selling bedding plants and three growing media were used in the study:

Plant material

Seed Geranium — 'Sprinter Scarlet'

Petunia — 'Pink Magic'

Impatiens — 'Elfin Red'

Marigold — 'Goldie' (dbl. french)

Media treatments (by volume)

1:1:1 — Fort Collins clay loam, Canadian Sphagnum peat and No. 8 perlite

1:1 — Canadian Sphagnum peat and horticultural vermiculite

1:1:1 — Fort Collins clay loam, Arizona bark and No. 8 perlite.

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All plants were fed Peters 20-20-20 plus trace elements (200 ppm N) through the irrigation system. Seeds were sown in "Jiffy mix" and transplanted into the cell packs containing the different growing media. The experiments were conducted during the "normal" bedding plant season.

Results to date are not promising for the bark mix. Treatment differences began to appear within 3 to 7 days after transplanting. Except for the marigolds, all seedlings planted in the bark mix began showing signs of stunting, yellowing or reddening, necrosis, and death. The surviving plants remained very stunted for the duration of the experiment. The other two media produced comparable, salable plants; the peatlite-grown plants being consistently taller.

In the simultaneously run phosphorous level experiment, bark grown plants showed progressively less stunting or

death as the phosphorous level increased (highest level = 10 pounds treble super phosphate per cubic yard), but never reached the size and vigor of the other two mixes. The exact cause of the problems with the bark mix are unknown at this time. The soil tests suggest a high salt level. Another possibility is the presence of a toxin leached from the bark.

Some growers have experienced similar problems when bark was used in their transplanting media. One grower planted seed geranium seedlings and obtained symptoms similar to those observed at CSU. A second grower lost almost 100 percent of his transplanted pansy crop.

It appears that little or no problems exist when certain ratios of peat and bark are used. Further work is now underway to try to solve the bark problem.

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