Performance of Anthurium (*A. andreanum* Lind.) in Different Bedding Materials at Two Sites in Puerto Rico[1]

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ABSTRACT

Several native materials were evaluated as bedding materials for the growth of Anthurium at two sites in Puerto Rico. The materials were compared to peat moss for the production of cut flowers. After more than 3 years of data statistically analyzed, the results showed that materials such as cane bagasse, coffee leaf mold, wood shavings, spent ground coffee, cured coffee pulp or coffee parchment, chicken manure, tree bark, and top soil + filter press cake were as effective as peat moss for production of Anthurium flowers.

INTRODUCTION

A cut-flower ornamental agriculture based on topical plants has not been exploited in Puerto Rico. Anthurium growing for that purpose has shown a very bright perspective especially for the cool climate of the mountains. This paper reports our experience in the production of Anthurium in different bedding materials at two sites. The economic aspect and some horticultural problems have been reported by Hawaiian researchers,[3, 4] Some materials such as cane bagasse, wood shavings and others have been found suitable as growth media.[3, 5]

PROCEDURE

Potted seedlings of Anthurium (*A. andreanum* Lind.) were obtained from a local ornamental plant nursery. The sexually propagated plants were supposedly of the Guatemala variety, which produces a salmon color spathe.

The plants were grown in concrete beds containing different bedding

[1] Manuscript submitted to Editorial Board September 27, 1978.

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[3] Nakasone, H. Y. and Kamemoto, H., Anthurium Culture with Emphasis in the Effects of Some Induced Environments on Growth and Flowering, Hawaii Agri. Exp. Stn. Tech. Bul. 50, 19 p., 1962.

[4] Barmettler, E. R. and Sheehan, T. J. A Budgetary Analysis for a Large-Scale Anthurium Operation in Hawaii, Hawaii, Agri. Exp. Stn. Agri. Econ. Rep. 63, 24 p., 1963.

[5] Higaki, T., and Poole, R. T., A Media and Fertilizer Study in Anthurium, Jn. Am. Soc. Hort. Sci. 103: 98–100, 1978.

materials over a coarse sand bottom. A plastic weave provided around 75% shade. The installation consisted of 1½ in. water pipes or concrete posts for the support of the frame over which the shade was placed. The bedding materials were obtained from different sources. For instance, the tree bark was obtained at Río Abajo Forest of the Commonwealth of Puerto Rico; coffee parchment, from the Coffee Growers Cooperative; chicken manure, from Aibonito. The materials were variable in composition and physical characteristics.

Each one of the 40 concrete beds was filled with the bedding material according to the different treatments. The material was thoroughly disinfected with a 1 to 4 dilution in water of a 40% formaline solution. At the Gurabo Substation, 18 potted seedlings were planted in each 3 × 15-ft. concrete bed while at the Adjuntas Substation 24 plants were placed in each one of 4 × 20-ft. concrete beds. A total of 40 beds were planted at each of the two sites with 10 treatments distributed in a partially balanced incomplete block design with 2 treatments per block.

Insects and diseases were controlled with different combinations of insecticides and fungicides as recommended by the entomologist and plant pathologist. Most of the control was done as a preventive measure, although in certain instances, control was not obtained as expected.

A slow release formulation of a 14-14-14 fertilizer was applied periodically four times a year, at a rate of 56 g per plant. A soluble fertilizer commercially known as Miracid[6] was included in the insect and disease spray mixture. Irrigation was applied when needed with stake sprayers running along each bed.

The flowers were harvested weekly at the Gurabo Substation while at the Adjuntas Substation, they were harvested every other week. Maturity was considered reached when at least half of the spadix turned from a yellowish to a whitish color.

RESULTS AND DISCUSSIONS

The number of flowers produced by Anthurium grown in different bedding materials is presented in table 1. No significant differences as to the performance of the plants in the different beds were observed in the Gurabo Substation. Some significant differences were observed at the Adjuntas Substation.

The plants grown in peat moss, the most commonly used potting and rooting material, did not produce significantly more flowers. In fact, that treatment was superior only to those grown in the Caño Tiburones muck.

[6] Trade names in this publication are used only to provide specific information. Mention of a trade name does not constitute a warranty of equipment or materials by the Agricultural Experiment Station of the University of Puerto Rico, nor is this mention a statement of preference over other equipment or materials.

Materials such as sugarcane bagasse, coffee leaf mold, wood shavings, chicken manure, spent ground coffee, cured coffee pulp and top soil + filter press cake compared favorably with peat moss. Plants grown in tree bark produced significantly more commercial flowers that those grown in the other native and imported materials except those grown in spent ground coffee. The plants grown in spent ground coffee significantly produced more flowers than those grown in Caño Tiburones muck, chicken manure or top soil with filter press cake. The value of bagasse, wood shavings, black cinder and treefern for Anthurium growth media has already been established.[3, 5] The differences in production between the Gurabo and the Adjuntas experiment are not valid because of the

TABLE 1.—*The effect of different bedding materials on the production of Anthurium flowers at two sites in Puerto Rico*

Bedding material	Average number of harvested flowers in dozens/ha/week	
	Gurabo	Adjuntas
Sugarcane bagasse	1421 n. s.	959 bc[1]
Coffee leaf mold	1233 n. s.	948 bc
Peat moss	1235 n. s.	922 bcd
Wood shavings	1048 n. s.	909 bcd
Coffee parchment	1269 n. s.	
Caño Tiburones muck	1245 n. s.	811 e
Chicken manure	1248 n. s.	842 cde
Tree bark	1116 n. s.	1070 a
Spent ground coffee	1391 n. s.	997 ab
Peat moss + wood shavings	1189 n. s.	
Cured coffee pulp		928 bcd
Top soil + filter press cake		811 de

[1] Means with the same letter or set of letters do not differ significantly at the 5% level.

difference in planting distance. This report has shown that there are very good native materials for Anthurium growing media. Materials such as coffee leaf mold, chicken manure, spent ground coffee, and cured coffee pulp and parchment are very good for Anthurium growing.

The selection of a growing medium in Anthurium culture in Puerto Rico must depend on the availability and durability of the materials and not on flower yield and quality. There are several materials that were as good as or better than peat moss.

RESUMEN

Se evaluaron algunos materiales nativos como camadas para la siembra de anturios en dos localidades en Puerto Rico: las Subestaciones Experimentales Agrícolas de Gurabo y Adjuntas. Los materiales se comparon con la turba de pantano en la producción de flores cortadas.

Después de cuatro años de observaciones los resultados reflejaron que materiales tales como bagazo de caña, hojarasca de la finca de café, viruta de madera, borra de café, pergamino y pulpa de café curada, gallinaza, corteza de árboles y suelo con cachaza de caña curada comparan favorablemente con la turba de pantano en la producción de anturios.