

spray with a mixture of Benlate (1 teaspoon/gal) and 20-20-20 soluble fertilizer (1 teaspoon/gal) is applied.

The rooted cuttings in the outdoor frames are not dug until they have received a natural cold period to break their dormancy. In February, we pot and set the rooted cuttings in a greenhouse to establish a good root system before lining out in the nursery.

I have had similar good success this year, on an experimental basis, rooting *Magnolia* 'R.A. Fenicchia' in a greenhouse with bottom heat at 70°F. Cuttings were stuck on July 21, August 16, and September 8. Most of the cuttings were well rooted in 3 to 4 weeks at all time periods.

In conclusion, I would like to say that the overall percentage of cuttings rooted with both techniques is very good. With some *Magnolia* cultivars the rooting percentage was 100%. I have found that *M. × soulangiana* and *M. quinquepeta* (Syn.: *M. liliflora*) cultivars root readily.

## HOW THE COMMERCIAL PROPAGATOR MIGHT BEST USE THE RESOURCES OF AN ARBORETUM OR BOTANICAL GARDEN

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Prior to becoming an Arnold Arboretum staff member, I worked for a small family owned nursery. I occasionally visited the Arboretum and, once in a while, I requested and received propagating material from them. But not until I became an Arboretum staff member did I become fully aware of the many ways a commercial propagator might make use of an arboretum. Some of the resources available from an arboretum are plants, seeds, cuttings and a myriad of information relating to them. One can also obtain help in identifying, locating and propagating plants. One can even get help in selling plants.

The Brooklyn Botanic Garden (BBG) Handbook, *American Gardens – A Traveler's Guide*, lists the names and addresses of over 100 arboreta and botanic gardens in North America. It also includes many other gardens that are open to the public. Many botanic gardens regularly publish booklets that are helpful and educational. Another BBG handbook that I often find useful is the *Nursery Source Guide*. It lists wholesale and retail sources of plant materials. To take advantage of this and similar free

advertising, one should add arboreta and botanic gardens to his company's mailing lists.

Nursery catalogues, horticultural periodicals and an abundance of botanical and horticultural books may be found in the libraries of botanic gardens. Some winter day you could look through *Horticultural Abstracts*, available in many garden libraries, and find what has been written about your areas of interest. It is a great aid in keeping up on the changes and new ideas which can help keep one ahead of the competition.

If you are searching for a plant that you have read about, but for which you cannot locate a source, check with your nearest arboretum, and if they don't have it, ask if their library has the microfiche published by the American Horticultural Society Plant Sciences Data Center. It is a combined inventory of some of the major plant collections on this continent. By using it or the individual inventories made available by some gardens, you may find a possible source. Then a polite request will usually obtain propagating material for you. When you do make a request, don't expect hundreds of cuttings or pounds of seeds, because most arboretum collections include only one or two plants of their more unusual taxa. Gardens are also limited by the staff available to make collections for you and the length of your request list should be limited accordingly. Another use for plant inventories is to indicate the relative hardiness of a plant. But this information alone can be misleading because the plant may actually be in a protected site.

You and your customers can use an arboretum collection to compare what you are growing with what you could be growing. Mature specimens of plants you offer can be compared with other possibilities and may be photographed for use in your catalogue.

In the past year, two east coast arboreta have offered walks for propagators. While touring the collections, participants were encouraged to take cuttings of interesting plant materials. Following is a list of arboreta and botanic gardens that have traditionally been active in collecting and introducing new plants to cultivation: Arnold Arboretum, Brooklyn Botanic Garden, Cary Arboretum, Los Angeles State and County Arboretum, the Royal Botanical Gardens-Hamilton, University of British Columbia Botanic Garden and the University of Washington Botanic Garden. If you are interested in trying new plant material, many gardens publish an index seminum from which you may request seeds. The U.S. National Arboretum has a very active breeding program and they have also collected and distributed many interesting plants from foreign nurseries.

Last year the Arnold Arboretum sent two staff members to

Japan and Korea to collect seeds of species growing in the coldest habitats in which they were known to occur. Plants from these seeds are now being tested and, if they prove to be superior to what is now available, they will be offered to the trade. If you would like to test your own selections, why not send propagules to several arboreta to see how the plants perform under different conditions.

Just as nurseries have specialties, so do arboreta. An arboretum with a very complete collection of the cultivars of a genus may be designated by an International Horticultural Congress to be the registration authority for that genus. The Royal Botanical Garden at Hamilton is, for example, the registration authority for the genus *Syringa*. Cultivar registration protects the use of the name and provides official record of the introduction.

When an arboretum does have a very large special collection they frequently have one or more staff members who are experts in that subject and, if you have a problem in that area, they may be able to help you. Or they may undertake a research project designed to study your question. Another arboretum expert you may wish to consult is the horticultural taxonomist who, with the help of an herbarium collection, can identify an unknown plant for you or your customers.

If you have further interests in the functions and resources of arboreta and botanic gardens, why not join the American Association of Botanical Gardens and Arboreta, an organization dedicated to research and education as they relate to botanical gardens. Now that you are aware of the multiple uses of an arboretum or botanical garden, I urge you to use and support them for our mutual benefit.

### INFORMATION RESOURCES

American Association of Botanical Gardens and Arboreta. Dr. Mildred E. Mathias, Department of Biology, 124 Botany Building, University of California, Los Angeles, CA 90024.

American Horticultural Society, Plant Sciences Data Center, Mount Vernon, VA 22121.

Brooklyn Botanic Garden, 1000 Washington Avenue, Brooklyn, NY 11225.

Horticultural Abstracts, Commonwealth Bureau of Horticulture and Plantation Crops, East Malling Research Station, Maidstone ME19 6BJ, Kent, U.K.