

rate that will result in the proper rate for the final medium. If 10 pounds of a fertilizer is desired per cubic yard of medium and the bark comprises 50% of medium volume, then the fertilizer should be added to the bark at the rate of 20 pounds per cubic yard. Sanitation during this type of mixing procedure can also be a problem.

Shredder-mixers are also used to prepare media. Such a system can greatly reduce particle size and is unsatisfactory for blending fertilizers, especially controlled-release fertilizers, into the container medium.

Growth medium components should have a relatively low to moderate moisture content for mixing. This is especially true if dry fertilizers are to be added during mixing. It is difficult to achieve a uniform distribution of the dry fertilizer particles in a moist medium. If the fertilizer amendments have already been added to one of the components, a moderate moisture level during mixing might be satisfactory. Another consideration is to add moisture after the medium has been mixed. It is often difficult to rewet pine bark, peat and other components when they have a moisture content below 30 percent. Chemical wetting agents can be used effectively to reduce this problem.

### Media storage

The raised covered slab or covered bin facilities suggested for component storage can be used for prepared media. Media prepared with the proper fertilizer amendments should generally be stored in such a way to minimize leaching. Since there can be release of fertilizers in the medium during storage and salt levels could reach critical

levels, the salinity level of media stored for several weeks should be determined before it is used. Avoid this problem by preparing or purchasing only the amount of media needed to satisfy the short-term demand.

### Amendments

Common amendments to growth media during mixing include micronutrients, dolomitic limestone for pH adjustment and pesticides. An approved insecticide for the control of fire ants must be incorporated in the growth medium of container-grown plants to be shipped out of Florida. Superphosphate has been routinely added to media during mixing, but research has shown that the phosphorus in superphosphate is readily leached from pine bark based media. Adequate phosphorus for a growing season can not be added during media preparation by adding superphosphate. Therefore, phosphorus should be applied periodically as a part of the overall fertilization program.

## Industry trends toward preblended media

Fifteen years ago most nurseries obtained container media components and blended them according to their specifications. During the past ten years, there has been a strong trend among nurserymen to purchase preblended potting mixes from specialty firms. This trend continues today and the specialty firms can be divided into two rough categories—those blenders which use primarily native peats, barks, sand, and those which employ primarily imported peats, perlite, vermiculite, calcined clay and other relatively expensive components.

The trend toward utilization of preblended media is most developed in the expensive preblends which are utilized extensively by greenhouse container plant growers producing plants in small to medium size pots. These blends are sold in bags or in bulk.

The cheaper mixes are used primarily for landscape ornamental production beyond the liner stage and for large potted foliage plants. Use of local materials including peats, wood particles, bark and sand constitutes a considerable savings in the cost of components and ultimate cost of the mix. These mixes are generally less uniform and consist of less persistent peat and other particles than used in mixes consisting of high quality peat.

The important decision nursery operators must make is to evaluate the benefits of using nursery-made mixes versus commercially preblended products. Consideration should be given to costs of media components, labor (ordering products, mixing components and quality control), and equipment for blending (equipment purchase and maintenance). Loss in crop value from restricted growth, dead plants or increased production time should also be considered in determining actual costs. The final decision should be made on an economic basis rather than holding with company tradition or doing what many of the other local nurseries are doing.

Some companies have gone one step beyond preblending potting media and are prefilling pots with specified preblended materials and delivering them directly to the nursery. This is another service provided to some nurseries which should be evaluated systematically.

