ing regime consists of 5 minutes on and 5 minutes off from 9 pm to 4 pm. Pinching of plants is accomplished when the new growth is about 2 in. long. If the plant is to be marketed as a quart liner it may be pinched 2 to 3 times.

When the desired level of growth is achieved, the lighting is terminated and night temperatures are allowed to drop so as to encourage hardening-off. Our goal for the season is to grow a branched liner 8 to 10 in. high in approximately 5 months.

PROPAGATION OF RARELY CULTIVATED PLANTS AND NEW INTRODUCTIONS

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Few temperate regions of the world are blessed with so varied and diverse a flora as the southern United States. Nurseries in this region, which many of you here represent, produce millions of ornamental plants. However, surprisingly few of our native species are in the trade. Most of the plants you grow are of eastern Asiatic origin, but again they are only a small percentage of the possible choices from that area. Potentially useful plants from other regions of the world are hardly known.

Woodlanders, Inc. is perhaps unique in that we almost totally disregard the kinds of plants other nurseries grow. Instead we concentrate on a very broad range of native and exotic material, which is otherwise unavailable or difficult to find. Our plants are sold throughout the United States and abroad via mail order. Many of the plants we grow are hardy in cold areas, but we specialize in plants for milder climates. This affords a wider range of options horticulturally and serves a part of the country where specialist nurseries have been rare.

We are a very small nursery by most standards. We are located in Aiken, South Carolina, in the same hardiness zone (8) as Norfolk, Virginia. We are in the Sandhill Region and may have a somewhat drier climate than Norfolk, which is much moderated and influenced by the sea. This year Woodlanders, Inc. listed over 75 native tree species, over 130 native shrubs, more than 15 native vines, and over 75 native perennials. Over 100 exotic plants in similar categories and many new introductions are also listed. A number of the plants we grow are very rare and some are endangered species. We are

not what is generally termed a "wildflower nursery". We do not sell collected plants and are generally opposed to that practice because it can definitely be a threat to the survival of some rare plants. On a regional basis the loss of critical habitat is perhaps the much greater threat to rare species.

We are able to buy a few of our plants from other nurseries but most of them we propagate from seeds, cuttings, root cuttings, or by other suitable methods. There is no other source for much of the material we grow. I will not discuss propagation procedures for specific plants as much of our propagation is still experimental. A slow and sometimes complex learning process is involved in growing new plants and often there are few guidelines. We do not have highly sophisticated facilities. Although we propagate over 400 kinds of plants, we do not produce any of them in great quantities. Sufficient numbers of plants for our purposes may result with propagation percentages unacceptably low for most commercial nurseries. Restraint must often be exercised to avoid overproduction and it is best to discard any excess material early-on. Demand for rare plants is, however, very changeable. A single article in a widely-read popular publication can stimulate instant demand for large numbers of a plant that was previously hard to give away.

Seed Propagation: We propagate many plants from seed. Seed of many native species is collected from wild populations throughout the Southeast. Some come from plants cultivated in our own garden or elsewhere. To collect seed of some plants we must visit the right spot at the right time. This may involve considerable travel, search, and research. Some years there is no seed produced, or we miss the critical timing. We maintain contacts with seedsmen, plantsmen, arboreta, and botanical gardens throughout the world; these are our primary sources for seed of new introductions.

Each kind of seed must be treated on an individual basis from collection, cleaning, storing, stratifying, media selection, sowing and growing. Some are planted in greenhouse flats or individual pots. Some are planted in outdoor seed beds. Germination of some seed is very quick, but other kinds may take up to two years. Some seedlings must be transplanted several times while a few can be sold directly from the seed beds.

Cutting Propagation: A wide range of plants is propagated by cuttings. We pursue this somewhat opportunistically and often experimentally. To date we have not used an automated mist system. Most cuttings are rooted in flats in the greenhouse. Some are rooted in sweat boxes but most are placed on the open bench where they are watered or misted manually.

We use various rooting hormones relying chiefly on past experience and intuition. Media is chosen in the same way and usually consists of sand, or combinations of sand, peat, sawdust, and perlite. Bottom heat is used on some cuttings during cool seasons. Quite a few plants we grow are xerophytes from our own desert-like sandhills or from arid regions. In rooting and growing these plants excess water must be avoided. These are rooted in a very porous medium with good light and good air circulation.

Other Methods of Propagation: A few plants have not reproduced readily from seed or from stem cuttings so other methods have been used. Root cuttings, taken during winter, work well for some. In some cases the sprouts which arise from root pieces are removed and treated as ordinary cuttings with good success. Layering is used occasionally but more often it is used in order to get a start of something than to produce it in quantity. Thus far the same has been true of grafting and budding. Many perennials are routinely increased by division.

Growing-On: Once started or divided, plants are grown in containers or in ground beds. Saleable plants are normally 1-gal container size or smaller. Shipping larger material is cumbersome and expensive. Beds and container mix are fumigated with methyl bromide. Potting mix varies but usually consists of three parts pine bark, one part sand, and one part ground, composted leaves. Composted leaves are available at our landfill. Fertilizer is mixed and/or added as a slow-release top dressing. Some native plants do not tolerate high levels of fertilizer and some grow too big too fast if fed at the rates practiced in many nurseries.

CONCLUSION

In summary, our products, techniques, facilities, and markets are still very much in evolution. In some respects we are doing everything the opposite of standard nursery practices in our region. While we are as yet unsure of many things, we do know that it is possible to grow a much greater diversity of interesting and attractive plant material than is currently available. This is especially true in the southeastern U.S. and we are encouraged that our efforts are being well-received by serious gardeners.