

the cuttings underneath and holds in the moisture from the mist creating an optimum microclimate for rooting. And fourthly, vinca seems to like a long cutting even though there is more leaf material to transpire during the rooting process.

We like this process because it is the fastest way to get a plant stem into the soil mix so that it can be mist propagated. To recapitulate: first of all they are pulled by the handful and placed in a large tray with the bottoms orientated in the same direction harvest the plants. These trays of cuttings are then immediately sprayed with cool water. Then handfuls of plants are taken directly from the carrying tray where they are all oriented and lined up and placed into the bulb crate on top of a propagation mix. Then a scoop of a propagation mix is placed over the row of stems, about 1 inch or less thick, and packed down. There is no further processing of the stems, no sorting, no cutting or trimming, and no stripping of leaves, and no sticking in hormone powder.

The resulting rooted cutting is usually used as a source of cuttings in early summer and then the lower rooted part is potted up into a 3- to 4-inch pot. This is a very good cutting because often it has rooted from multiple nodes and new shoots are growing from the old nodes. This method of rooting should be applicable to other plants that have a soft flexible stem and that are difficult to stick into a dibbled tray of a peat-bark mix or any other long cutting that can be kept oriented from the time of harvesting until the time of sticking.

Boxwood Propagation at Zelenka Nursery, Inc.®

Michael P. Corbett

Zelenka Nursery, Inc., 16127 Winans Street, Grand Haven, Michigan 49417 U.S.A.

INTRODUCTION

I will be sharing the production steps we use to produce *Buxus* at Zelenka Nursery, including greenhouse propagation and field grown liners. We propagate and grow our liners for our container program. We have tried several different production methods and have found the following method to be most cost effective to produce *Buxus* at Zelenka.

CULTIVAR SECTION

Our sales forecast drives the quantity and species of *Buxus* to be grown. We currently are propagating 200,000 *Buxus* annually, including the following species and cultivars:

- *Buxus* 'Green Velvet'
- *Buxus* 'Green Mountain'
- *Buxus sinica* var. *insularis* (syn. *microphylla*) 'Winter Gem'
- *Buxus sempervirens* 'Wonford Paige'
- *Buxus* 'Glencoe'

PROPAGATION GREENHOUSE REVIEW

Our greenhouse is equipped with raised benches, natural gas heaters, intermittent mist system, hot-water bottom heat, fans for cooling, and is covered with a 6-mil 3-year poly tube.

Medium and Nutrition. *Buxus* are direct stuck into soil medium of yellow pine bark that is 1 year old screened to $\frac{1}{2}$ to $\frac{5}{8}$ inch and course horticultural perlite [7 yellow pine bark : 3 perlite (v/v)]. We incorporate 4- to 6-month 17N-5P-15K plus minors at a 6 lb per yard³ rate.

Propagation Tray. The tray we use is a 38-cell seedling tray. The manufacturer is Landmark Company.

Hormone. Woods Liquid Rooting Hormone with active ingredients of indole-3-butyric acid 1.03% and naphthalene acetic acid 0.66% is used at a ratio of 1 part hormone : 20 parts water (v/v) for hardwood cuttings.

Availability of Cutting Wood. Cuttings are taken from dedicated stock plants and nursery- production plants.

Method of Propagation. Hardwood cuttings are taken in mid-October from current year's growth; 4- to 6-inch-long cuttings are used. Cuttings are taken, made, and bundled into groups of 25 in the field. Bundles are placed into blueberry lugs. When the lugs are full, they are transferred into refrigerated trucks. Several times per day cuttings are transferred to the greenhouse, stored in a cooler, and misted. Cooler temperatures are maintained at 36 to 38 °F. At sticking time cuttings are removed from cooler. A fresh cut is made and cuttings are dipped in hormone for 3 to 5 sec. We stick two cuttings per cell. Bottom heat is maintained at 70 °F during winter months.

It is very important to use protective fungicide to minimize disease. We have found that an application of Terrachlor within 2 days after sticking reduces disease problems. We also use OHP6672, Banner Max, Terrazole, and Heritage in 30-day rotations.

FIELD GROWN LINER REVIEW

Soil and Nutrition. Soil is sandy loam with 5% organic matter. The pH. is adjusted to between 5.5 and 6. Two fertilizer applications of 24N-0P-9K 50% sulfur-coated N at 300 pounds per acre are applied. Time frame for application is mid-May and again approximately 1 July.

Planting. Cell plugs from greenhouses are planted in mid-June. A six-row mechanical transplanter, pulled by a 70 H.P., four-wheel drive tractor is used for planting. Spacing is 9 inches between plants and 9 inches between rows. This planting scheme gives us 54,000 plants per acre. Plants are grown for 2 and 3 years in liner beds.

Pruning. Pruning is done with a Woods mower mounted on a tractor. Boxwoods are pruned two times per year to promote branching.

Herbicide. A tank mix of Gallery (isoxaben) and Pennant (metolachlor) is used. Time frames for application are once in the spring (early April) and again in late August.

Antitranspirant. Antitranspirant is applied in November to help reduce winter burn. We use Vapor Guard at a 5% rate (5 gal of product per 100 gal of water).

Harvest. Liners are harvested with a Lundaby Digger. The digger undercuts liners and shakes off the soil from the roots. Liners are placed in bulk boxes manually. When boxes are filled, labeled, and covered, full boxes are transported to coolers maintained at 36 to 38 °F. Plants are removed from coolers and brought to the potting-machine line.

RESULTS AND DISCUSSION

We have tried several different production methods for growing boxwoods over the years at Zelenka Nursery. The hardwood propagated Boxwoods with the above-mentioned hormone and bottom heat have performed the best for yields and product cost. The plugged liner, which is field planted 9 months after sticking, has given us very good yields and size we need for our container program. Two-year liners are used for 1-gal pots and 3-year liners are put in 3-gal pots. The liners are potted in October and are ready for sale the following spring (May or June).

Potential New Garden Plants from Maine®

Donglin Zhang

Department of Plant, Soil and Environmental Sciences, University of Maine, Orono, Maine 04469-5722 U.S.A.

Steve Effner

Western Maine Nurseries, Inc., One Evergreen Drive, Fryeburg, Maine 04037 U.S.A.

INTRODUCTION

New and colorful plants are the new “blood” for the horticultural trade (Armitage, 1993) Under the support of Maine Landscape and Nursery Association, University of Maine R&D, and Western Maine Nurseries, the “New Plant Production” program was established 6 years ago in the Landscape Horticulture Program in the Department of Plant, Soil, and Environmental Sciences at the University of Maine in Orono, Maine. With an area as large as the five other New England States combined, plus plant lovers, plant breeders, gardeners, and horticultural professionals, Maine has great potential for new garden plants. All plants mentioned in the text have originated from our beloved Maine. They could be plants discovered in the wild or cultivated areas (natural selections) or derived from breeding, hybridization, tissue culture, and gene transformation (artificial selection) here in Maine. The purposes of this paper are to share potential new garden plants from Maine, to seek more information on their propagation and production, and to promote further industry-research institute collaborations.

MATERIALS AND METHODS

New plant production is a long-term research project. From the discovery of a new potential garden plant to its production stage, it usually takes 3–20 years. After a plant is targeted as a potential new garden plant, we will study this plant by three sequential steps: (1) Identify the uniqueness of this plant, including morphology, physiology, molecular markers, etc., (2) Investigate the reproduction methods, especially feasible propagation methods, (3) Set up trials in different locations of Maine as well as other states. Replicate experiments are set up if applicable. If the plant gives its unique traits to its offspring and performs well in the landscape trial sites, this new plant will be released to the industry.