SPRING/SUMMER PROPAGATION AT JACKSON NURSERY

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Spring/summer propagation accounts for 90% of all propagation that takes place at Jackson Nursery. Cuttings are stuck in outdoor bottom-heated and unheated mist beds beginning the first of April. Needle evergreens are the first group of plants to be stuck, next are the softwoods. The softwoods are started approximately the end of May or the first of June and continued into August.

Semi-hardwood cuttings, i.e. rhododendron, begin mid-July and end in August. Direct sticking of cuttings of easy-to-root species was started the summer of 1986 as an experiment and is being continued today.

NEEDLE EVERGREENS

Taxus. Taxus cultivars are started the end of April and completed by the end of May or before new growth begins. Wood is collected from field-grown plants that were trimmed no later than June 15th of the previous year and have put on at least 7 to 10 in. of new growth. This is the wood that is used for cuttings taken the next year in April. New wood is collected, stripped, cut to a length of 7 in. in the field, put into bundles of 25, placed in poly bags, and then brought into the propagating room, dipped into Wood's rooting liquid, and checked for proper length and thickness. These cuttings are now ready to be stuck in the outdoor heated mist beds (1).

Juniper. Juniper cultivars are the next species to be done. They are handled much the same way as taxus. They are also stuck in heated mist beds. Once these cuttings are rooted, usually taking 7 to 10 weeks, they are potted into one gal. containers; this is a change from our normal production schedule of two years ago. We find by potting plants as soon as they are rooted, we have less chance of diseases in the cutting beds. Plants have ample time to develop a root system in the remaining growing season. The following year we obtain more growth from the rooted cuttings that are potted immediately after rooting than from those held in a cutting bed and potted in the spring.

Thuja. Thuja wood is collected in the field, stripped and cut to length much the same way as for other evergreens. After treatment with Wood's rooting liquid, they are stuck in an unheated bed. We find that heat is not necessary for this species. All watering is done by an intermittent mist system.

SOFTWOODS

Softwood cuttings are made in the field, placed in moistened poly bags, and brought to the propagation room to be checked and dipped in Wood's rooting liquid. These cuttings are stuck in a 3 ft deep cold frame that is covered with white poly. The reason we use a deep cold frame is for winter protection for plants that will not tolerate temperatures below 32°F. The use of microform blankets and sash made of filons have made it possible to maintain safe temperatures of 32°F even when outside temperatures go as low as −20°F. The poly is supported by hoops made of ¾ in. water pipe and placed at 3 ft intervals. The medium is sand and perlite (1:1, v/v). Intermittent mist is supplied by ¾ in. P.V.C. pipe and controlled by two time clocks.

SEMI-HARDWOOD

Rhododendron propagation begins when the color of the stems starts to turn from light green to a darker green and the wood snaps when bent; this is usually around the middle to end of July. The wood is collected early in the morning, placed in plastic bags that have had water added and brought to the propagating room. We collect only the amount of wood that can be stuck that day. If we have more wood than needed, it is placed in a cooler at 40°F and can be used the next day.

At this stage the cuttings are washed with water from a garden hose with a coarse nozzle attached. We have found black vine weavil grubs in the propagating benches and by washing the cuttings we eliminate the eggs that have been layed by the adult. Cuttings are left to drain. The cuttings are made 3 in. long. leaving 3 leaves that are cut by ⅓ to give more room in the propagating benches. The base of each cutting is given a heavy wound into the cambium layer on one side approximately 1 in. long. They are dipped in a mixture of Benlate and Hormex 45 (1:9, v/v) for some cultivars and different dilutions of Wood's rooting liquid for others.

Cuttings are stuck in a medium of Canadian peat and coarse perlite (1:1, v/v). When overnight temperatures begin to drop, around the first of September, bottom heat is provided to keep an even temperature of 70°F. Water is provided by an intermittent mist system controlled by a homemade "leaf". This leaf unit is made of a threaded brass rod with a piece of 6 × 6 in. screen on one end and several nuts on the other end (a mercury switch is taped to the rod). When the screen collects water, it drops a few inches and the mercury rolls away from the contacts and the water shuts off. When water evaporates, the nuts on the other end act as a counter weight and the nuts drop, causing the mercury to roll back to the contacts and the 24 volt solenoid value to open.

After cuttings have rooted, usually late October to early November, they are taken to a polyhouse where they are planted in raised benches in a medium of peat and perlite (1:1, v/v). They are given a liquid feed of Peters 20-20-20 at the rate of 200 ppm and this is repeated in 10 days. Temperature is maintained at 32 to 34°F until March 1st when the temperature is increased to 65°F. Liquid fertilizer is then applied on a regular schedule every 10 days to two weeks (2).

DIRECT STICKING

Direct sticking was started as an experiment during the summer of 1986. This method of producing plants is not new and is being used in Europe as well as in the United States. We began by filling one-gal. containers with our regular potting mix of ⅓ Canada peat, ⅓ rotted pine bark, ⅓ sharp sand (pH adjusted to 5.5 to 6); no other amendments were added at this time. Containers were filled and placed in a 14 × 96 ft. hoop house, arranged to provide easy access for sticking cuttings by having two walks instead of one. White poly was used and fastened down to cover the hoops.

Propagation wood was collected, prepared and treated with Wood's rooting liquid and stuck into the medium. Two cuttings were used per pot. If adequate wood was available, three cuttings would be used, for this seemed to make a sellable unit sooner. Water was provided by overhead pipe and nozzles, 1 in. P.V.C. pipe was used with L10..LA. Rain Bird nozzles spaced 10 ft. on center. This was controlled by our homemade "leaf." Water was allowed to run from 8 a.m. until 7 p.m. when cuttings were first stuck in early June and was decreased as the days became shorter.

Easy-to-root species have been used so far. Plants that withstand large amounts of water are stuck first, like potentilla. Other species that have been successfully propagated using this method are: *Euonymus fortunei* 'Colorata', *Hedera helix, Cotoneaster horizontalis, C. adpressus* var. *praecox, Berberis thunbergii* 'Atropurpurea Nana' [syn. 'Crimson Pygmy'] and *Cytisus* × *praecox*.

Fertilizer is applied in the form of Osmocote (14:14:14) 3 to 4 months formulation at the rate of 2.5 grams once rooting has taken place. More fertilizer may be necessary but testing has to be done before any conclusion can be made.

The containers of the rooted plant material remain in this polyhouse until it is moved to a growing area the next year. The advantage to direct sticking in one gal. containers is that plant roots are not disturbed for two years, resulting in a sellable plant sooner (less handling of plants because plants remain in the same house for one year).

The disadvantages are more cutting wood is needed, more space is needed, and more time is spent on the propagating stage.

LITERATURE CITED

Gouveia, R. J. 1984. Rooting cuttings in outdoor mist beds. *Proc. Inter. Plant Prop. Soc.* 34:537–539.

RALPH SHUGERT: Bob, what is your hormone treatment?

BOB GOUVEIA: For *Taxus* we use Wood's rooting hormone, diluted 5:1 (v/v); with more difficult-to-root species, 3:1 (v/v), and for softwood types a 20:1 (v/v).

CLAYTON FULLER: You need to watch slow-release fertilizers use because you can get a salt build-up with some formulations.

Tuesday Afternoon, December 8, 1987

The afternoon session was convened at 1:50 p.m. with Bruce Macdonald serving as moderator.

MODERN FERTILCIDE IN THE NURSERY

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What is fertilcide? It is the process in which the manufacturer uses a blended fertilizer (in this report it will be 10-10-10) and coats it with a herbicide. In this paper we will only refer to herbicides by their common trade names. The herbicides being used at present for the process and which we will discuss are Dual, Goal, Kerb, Simizine, and Surflan. The blending of these products is covered by EPA Form 3540-16, "Pesticides Report for Pesticide-Producing Establishments''. You should secure from your manufacturer a copy of this form and have it on file if you use any of these products.

Although the use of these blended products is not new to agribusiness (the amended EPA Form is dated 1980), they have not been in common use in the nursery industry—maybe due to unavailability.

When we first looked at this program in 1983 we were intrigued with the possibility of applying fertilizer and herbicide in one application. However, being a new program we were not sure it would work. At Bigelow Nurseries we interplant shrubs between rows of shade and ornamental trees and this raised a number of questions about the program. Would it be possible to apply this