

Improving Rooting of Several *Berberis thunbergii* Cultivars[®]

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INTRODUCTION

Propagation of *Berberis thunbergii* cultivars as a softwood cuttings at Zelenka Nursery has its challenges. We will be sharing the changes that we have made to our propagation program. We have two main focuses. One is to increase rooting percentages and produce a quality liner for our container program. The qualifier is not to increase cost and to improve yields in both propagation and container program.

CULTIVAR SELECTION

Our sales forecast drives the *B. thunbergii* cultivars that we produce. We currently are propagating 400,000 units annually, including these cultivars:

- *B. thunbergii* f. *atropurpurea* red barberry
- *B. thunbergii* 'Atropurpurea Nana' crimson pygmy barberry
- *B. thunbergii* 'Aurea' golden barberry
- *B. thunbergii* 'Rose Glow' rose glow barberry
- *B. thunbergii* 'Bogozam' Bonanza Gold[™] Japanese barberry
- *B. thunbergii* 'Bailtwo' burgundy carousel
- *B. thunbergii* 'Bailone' ruby carousel
- *B. thunbergii* 'Tara' emerald carousel
- *B. thunbergii* 'Gentry Cultivar' royal burgundy

PROPAGATION REVIEW

Our greenhouses are equipped with raised benches, intermittent mist system, bottom heat, fans for cooling, and covered with 3-year poly film. We also use 50% shade tarp on the top of the greenhouse from early June through mid September.

PROPAGATION

Medium and Nutrition. The propagation medium is Bio Comp composted growing mix. Bio Comp is made up of the following ingredients: peanut hulls, pine bark, sphagnum peat moss, and additives include starter fertilizer, wetting agent, and suppresses soil-borne pathogens such as *Pythium*, *Fusarium*, and *Rhizoctonia*.

Propagation Tray. The tray used is a 72-cell tray, 1½ inch × 2¾ inch with a 6 × 12 pattern impregnated with spin out. The manufacturer is Lerio Company.

Hormone. Woods rooting hormone with active ingredients of indole-3-butyric acid 1.03% and naphthalene acetic acid 0.66% is used at 1 part hormone 80 parts water. Cuttings are dipped for 3 sec.

Availability of Cuttings. Cuttings are taken from dedicated stock plants and from production plants in the nursery.

Method of Propagation. Softwood cuttings from the current seasons growth, 2 to 3 inches long, are used; the very tip is removed. Cuttings are taken, made, and bundled into groups of 25 in the field. Bundles of cuttings are placed into blueberry lugs which, when lugs are full, are transferred into a truck. Several times per day cuttings are brought to the greenhouse and stored in a cooler. Cuttings are misted and the cooler temperature is maintains at 38°F. At sticking time cuttings are removed from the cooler and treated with Woods hormone 3-sec dip.

Hormone-treated bundles are placed back into lug and brought to stickers. We do not strip or wound cutting wood. The cuttings are planted one per cell in cell trays. Planting depth is half the depth of the cell.

It is very important to use protective fungicides to minimize diseases in wet, humid conditions under mist. We have found that applications of PCNB (pentachloconitro benzene) no later than 2 days after planting reduces disease incidence. Other fungicides are used on 21-day schedule; they include Cleary 3336 (dimethyl 4, 4-0) phenylenebis-(3-thioallophanate), Terrazole-5-3(trichloromethyl-1,2,4-thindiazole, and Chipco 26019 (iprodione).

RESULTS AND DISCUSSION

I need to back up a bit and tell the rest of the story. Our old method of propagating *Berberis* was to take our softwood cuttings in June, stick multiple cuttings into 2¼ × 4 inch 38 trays. Medium was pine bark and perlite (7 : 3, v/v). Hormone was and still is Woods soluble concentrate at 1 part hormone to 80 parts water. Rooting percentages averaged 70% across eight cultivars. The end product was somewhat inconsistent, especially when only one piece of cutting wood rooted out of two or three stuck. Remember our goal was to increase rooting percentage and produce a high quality liner for our container program. Our new method is to stick one piece of wood per cell in a 72-cell tray impregnated with spin out. We still stick cuttings in June, and use Woods rooting hormone at one part hormone to 80 parts water. The medium was changed from pine bark and perlite (7 : 3, v/v) mix to Bio Comp growing mix. After the cuttings in the 72 tray have rooted and hardened off the cuttings are upgrade into a 21 tray (3 inch × 3½ inch) with the same Bio Comp media. Upgrade is done in winter months after plants have gone dormant (November through February). With increased rooting percentages from an average of 70% to 82%, and the larger liner in a 3 inch × 3½ cell vs 2¼ inch × 4 inch cell has given our container growers the ability to reduce culls and hit the salable dates needed. The costing supports this program as we managed to reduce the cost of our *Berberis* production.