

## Making Tissue Culture Pay

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### INTRODUCTION

We use tissue culture primarily in the propagation of new cultivars of *Betula* which need to be asexually reproduced. During the past 11 years we have sold 193,000 tissue-cultured 'Crimson Frost' and Royal Frost™ birch. These have all been produced in our own lab, rooted, and grown on for sale as liners. Our costing systems reveals that the sale of these tissue-cultured plants adds to our profitability.

### FACTORS INVOLVED IN MAKING OUR TISSUE-CULTURE SYSTEM A PROFITABLE VENTURE

**Selection.** Since we are known for our quality birch liners, tissue culture became a way for us to quickly introduce new improved birch cultivars. It is much faster than the traditional budding and easier for us to manage than standard cuttings. It fits our scheme of producing quality 1-year containerized liners 18 to 24 inches.

**Rooting.** We use unrooted microcuttings. Twenty five are stuck in a 4-inch, soilless-mix square pot and placed in a growth chamber for initial rooting. As they begin to root they are moved to polytents inside a greenhouse where they are grown to transplanting size.

**51 Cell.** The 1 to 1½-inch rooted cuttings are transplanted into a 51-cell tray (each cell 1¾ inch diameter × 3½ inch deep) and grown 4 to 8 weeks at which time they are 4 to 6 inches in height. They are then transplanted into a 3½ inch × 3½ inch × 5 inch deep pot.

**3½ inch × 5 inch Square Pots.** Nine of these individual pots are spaced alternately in an 18-unit-deep socketed tray so as to allow for proper density of the crop. They are grown 8 to 12 weeks to an 18- to 24-inch size with an approximate ¼-inch-caliper stem.

**Timing.** We manage our scheduling so that the majority of the plants in the 51-cell trays are ready for transplanting in May and June. Lab production is scheduled accordingly. We also do a late production from the lab which is rooted and held over winter as dormant plants in the 4-inch-square rooting pots.

**Root Configuration.** Both the 51-cell unit and 3½ inch × 5 inch square deep unit has grooves to prevent root curling. The 51-cell unit is designed and used so that the roots on the bottom are air pruned. We are experimenting with copper-treated units to develop a more natural root system.

**Overwintering.** The liners are allowed to harden off naturally during October and November. The greenhouses are covered with a 70% opaque poly for winter. The polyhouses are not heated. When temperatures rises above 55°F the structures are ventilated. When the plants are dormant they are graded and consolidated filling each socket in the 18-unit tray.

**Crop Cycle.** Depending on the time of the year the microcuttings are produced, the production cycle varies from 9 to 18 months.

**Shipment.** Liners are available to ship from September through mid-May. Small orders or orders from outside our general 1000-mile delivery range are shipped UPS, while larger amounts are usually delivered by our shelved, refrigerated, and air-ride semi trailers.

We are applying the same basic system of rooting microcuttings to lilacs and other species where profitable. Most of these microcuttings are being purchased from commercial labs.

## SUMMARY

In summary, tissue culture has become an integral part of our production scheme. It has allowed us to quickly introduce new cultivars requiring asexual reproduction into the market place at a profit and maintain our niche in the production of quality liners.

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## Two Ways to Crack the Nut — *Aesculus parviflora*

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## INTRODUCTION

*Aesculus parviflora*, bottlebrush buckeye, is a native shrub that grows 8 to 10 ft tall and 8 to 12 ft wide. While being native to much of the southeastern U.S.A., it is hardy in much of the eastern United States as far north as Zone 4. Panicles of large white flowers, 6 to 12 inches long are carried in profusion above the foliage in midsummer (in the mid Atlantic states usually in early to mid July). The plant prefers a moist well drained soil, but will adapt to lesser conditions. As this past summer has shown it is very drought tolerant once established. *Aesculus parviflora* grows well in full sun or shade.

Plants in the landscape are pest free and appear to be highly resistant to deer browsing.

Because of all these attributes the demand for *A. parviflora* has been huge, but there is a problem, the supply has not been able to keep up with the demand.

In a presentation, given to this group in Philadelphia in 1994, Dick Bir talked about “Why Some Natives Aren’t Mainstream...Yet”. He talked about the need for the plant to have market appeal and to be marketable; it must also be possible to produce the plant profitably. How many of us grow plants we like that are not really profitable.

Interestingly, he discussed *Fothergilla* as a native that was not widely known and had the reputation for being difficult to propagate. He also stated that in the near future, *Fothergilla* would be better known and more widely available. Guess what? Five years later *Fothergilla* is now listed in most container nurseries catalogs and considered a staple production item at many nurseries. The propagation problems once associated with the plant have been overcome with the selection of easier-to-root cultivars such as *F.* ‘Mount Airy’.