

Sweet Fern Rhizome Cutting Success Is Influenced by Propagation Medium[©]

Jessica D. Lubell and Mark H. Brand

Department of Plant Science and Landscape Architecture, Unit 4067, University of Connecticut, Storrs, Connecticut 06269-4067, U.S.A.

Email: Mark.Brand@uconn.edu

INTRODUCTION

There is a desire to increase the use of native plants for landscaping as alternatives to exotic species, some of which are invasive. *Comptonia peregrina* (sweet fern), an attractive, low-growing shrub, native to northeastern North America, is a prime candidate for development as a landscape plant due to its adaptability to exposed sites with dry, infertile soil (Dirr, 2009). Stem cuttings and seed are not viable propagation methods (Dirr and Heuser, 1987). Some propagation success has been found using dormant rhizome cuttings (5 cm sections) taken in fall, and provided a cold stratification of 2 to 3 months at 4 °C (Ruchala et al., 2002). Rhizome cutting methods must be optimized if sweet fern is to reach a level of production where it is readily available to landscapers and homeowners. This work looked at media and effect on success of rhizome cuttings. An additional objective was to find out what size plant could be obtained in one growing season from rhizome cuttings.

PROPAGATION AND PRODUCTION METHOD

Fall harvested, dormant rhizomes were cut into 5 cm pieces and planted in 160-ml square pots in four different propagation media: Scotts Metro Mix 510 Growing Medium, horticultural grade perlite, horticultural grade vermiculite, and mason's grade river sand. Two 5-cm cuttings were placed in each pot. Cuttings were placed horizontally in the pot with one crossed over the other. Pots were held in a dark cooler at 5 °C for 90 days and then were moved to a warm greenhouse for forcing. Cuttings were irrigated as needed, and while in the greenhouse, provided a soluble 20–10–20 fertilizer at 200 ppm N every 7 days. Young plants derived from rhizome cuttings were transplanted into 307-ml containers using an aged pine bark : sphagnum peat moss : sand growing medium (4 : 2 : 1, by vol.) and top-dressed with 4 g of Scotts Osmocote Plus 15–9–12 controlled-release fertilizer 8 to 9 month formulation. After 60 days, plants were transplanted by placing two 307-ml square pot plants into a 6-L container using the same (aged pine bark : sphagnum peat moss : sand) growing medium.

RESULTS

Cuttings propagated in vermiculite had 100% survival, while cuttings in Metro Mix 510, perlite, and sand had 81%, 81%, and 6% survival, respectively. Cuttings in vermiculite produced the greatest number of shoots per pot (4.2) and total shoot length per pot (14.8 cm), but were not statistically different from the Metro Mix 510 cuttings. Cuttings in perlite had significantly less total shoot length per pot than vermiculite and Metro Mix 510, and significantly fewer shoots per pot than vermiculite. Cuttings grown in sand performed poorly. Only two of the initial 32 pots survived to produce shoots upon forcing in the greenhouse, and these shoots were

severely stunted. One hundred and twenty days of growth in 307-ml and then 6-L containers produced full, well-established sweet fern plants going into dormancy. All 6 L-plants overwintered successfully and after leafing out in spring the average plant height and width was 67 cm and 59 cm, respectively.

CONCLUSION

Of the mediums tested vermiculite was the best for propagating sweet fern from dormant rhizome cuttings. This propagation method can be utilized as part of a production system to produce 6-L plants in one growing season. This work provides evidence that sweet fern can be a successful nursery crop.

LITERATURE CITED

- Dirr, M.A.** 2009. Manual of woody landscape plants. 6th ed. Stipes Publishing.
- Dirr, M.A., and C.W. Heuser.** 1987. The reference manual of woody plant propagation. Varsity Press, Athens, Georgia.
- Ruchala, S.L., D. Zhang, and W. Mitchell.** (2002). Improving vegetative propagation techniques of sweet fern (*Comptonia peregrina*). Comb. Proc. Intl. Plant Prop. Soc. 52: 381–387.