Aesculus parviflora Propagation by Layering©

Robert E. McNiel and Steve Elkins
Department of Horticulture, N-318 Ag. Sci. North, University of Kentucky, Lexington, Kentucky 40546-0091 U.S.A.

INTRODUCTION

Aesculus parviflora (bottlebrush buckeye) has made many recommended plant lists during recent times. However, few plants are available on a regular basis in the nursery trade. Seed was the main method of propagation until the 1990s when Bir and Barnes (1994) established a protocol for cutting propagation. Fordham (1987), in his discussion of propagation of bottlebrush buckeye, devoted his explanation to seed, except for a final comment that root cuttings and root suckers, can be a source. Seed availability, timing, or facilities may still limit this plant from being propagated in significant numbers by either seed or cuttings.

Layering has been recommended as a form of propagation for plants forming suckers by several authors during the 1900s (Bailey, 1920; Wells, 1985). While addressing layering in one form or another, neither Mahlstede and Haber (1957), Macdonald (1986), Dirr and Heuser (1987), nor Hartman et al. (1998) defines layering as a technique for bottlebrush buckeye. Bailey (1920) addresses the benefits of wounding during the layering process. As a means of producing large numbers of bottlebrush buckeye with limited facilities and less dependence upon timing, we looked at mound layering.

MATERIALS AND METHODS

Aesculus parviflora were planted on the University of Kentucky Horticulture Farm during the early 1990s in north/south rows. During 1998 the plants were bush hogged to the ground. Multi-stem regrowth occurred during 1999 and 2000. In Aug. 2000 research was initiated in order to determine if rapid propagation could occur by mound layering *A. parviflora*. Sawdust was row mounded 18 inches deep and 3 ft wide around 41 plants. Starting in Aug. 2000 three stems on 10 randomly selected plants were treated on a monthly basis. Treatments included cutting into the stem near the base, treating with Hormex No. 3, and keeping the stem gapped with a section of toothpick. A drip irrigation system was installed in the plot, and scheduled to run 20 min twice a day at 9 AM and 2 PM. One gallon per hour emitters were spaced every 2 ft along ½-inch diameter lines.

RESULTS AND DISCUSSION

During March 2001, plants treated each of the previous months were evaluated for rooting. Plants treated Aug. 2000 had roots formed at the wound site on 29 of 30 stems. Plants treated Sept. 2000 had roots formed at the wound site on 8 of 30 stems. No roots were found on stems treated in October nor November.

During the spring, each plant produced additional new shoots from the base. Late April 2001 the sawdust was reduced to about half its depth to allow for new stem development. Most new 2001 stems were developing new root growth by mid summer without wounding or hormone treatment. Initial results indicate that mound layering could be a viable means for propagating *A. parviflora*.

LITERATURE CITED

Bailey, L.H. 1920. The Nursery Manual. Macmillan Pub., New York, New York..

Bir, R.E. and **H.W. Barnes**. 1994. Stem cutting propagation of bottlebrush buckeye. Comb. Proc. Intl. Plant Prop. Soc. 44:499-502.

Dirr, M.A. and **C.W. Heuser, Jr.** 1987. The reference manual of woody plant propagation: From seed to tissue culture. Varsity Press, Athens, Georgia

Fordham, A.J. 1987. Bottle brush buckeye (Aesculus parviflora) and its propagation. Comb. Proc. Intl. Plant Prop. Soc. 37:345-347.

Hartmann, H.T., D.E. Kester, F.T. Davies, Jr., and **R.L. Geneve.** 1998. Plant propagation principles and practices, 6th ed. Prentice Hall, New Jersey.

Macdonald, B. 1986. Practical woody plant propagation for nursery growers. Timber Press, Portland, Oregon.

Mahlstede, J.P. and **E.S. Haber.** 1957. Plant propagation. Wiley and Sons, New York, New York.

Wells, J.S. 1985. Plant propagation practices. Amer. Nurseryman Pub., Chicago, Illinois.

Cutting Propagation Screening Trials at University of Rhode Island©

James Owen, Jr., William Johnson, and Brian Maynard

University of Rhode Island, Department of Plant Sciences, Kingston, Rhode Island 02881 U.S.A.

INTRODUCTION

The University of Rhode Island Agricultural Experiment Station is enthusiastic about introducing new species into the New England nursery industry. In recent years we have focused on propagation and cold hardiness of new or underused woody plants. In 2000 – 2001, 13 species (Table 1) were propagated with a range of hormones and overwintered. Rooted cuttings that are not under patent are distributed to Rhode Island nurseries for evaluation.

MATERIALS AND METHODS

Cuttings were collected from 28 June to 28 July 2001, rooted in a plastic-covered greenhouse in Kingston, RI, (41° 29'N, 71° 31'W), overwintered in a white-plastic-covered hoop house, and evaluated for rooting and survival in June, 2001. Prior to rooting, cuttings were treated with Hormodin 1,2, 3, Hormex 45, or Dip-n-Grow (1 : 4, v/v) or a water control (H1, H2, H3, H45, DNG 1 : 4 and control, respectively), and stuck in peat and perlite (1 : 4, v/v). Cuttings were misted with blue Vibro Mist nozzles (Netafim Irrigation, Inc.) regulated by a Phytotronics 1626D mist controller (Fig. 1). Means are based on four replicates of five cuttings for each treatment. Bottom heat was maintained at 72°F using Biotherm. After rooting, cuttings were acclimated before being moved to a white-plastic-covered overwintering house. Temperatures were recorded in the overwintering house, and reached a minimum of 16°F on 13 Jan. 2001.