

Stock Plant Shading to Increase Rooting of Paperbark Maple Cuttings

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INTRODUCTION

Acer griseum, the paperbark maple, is a lovely small tree with year-round interest but is relatively scarce in the nursery trade because of slow growth and difficulties in propagation. Propagation is mostly from seed, though seed production is often poor or unpredictable due to problems with poor seed fill and sterility. Grafting paperbark maple is difficult and generally impractical. In 1985, Dixon Hoogendoorn recounted to the I.P.P.S. membership his experiences with propagating paperbark maple from cuttings (Hoogendoorn, 1985). Using stock plants, of seedling origin, that had been cut back (hedged) for many years, he was able to obtain, predictably, 60% rooting of softwood cuttings taken in late June (Rhode Island).

It would be commercially important to be able to root paperbark maple in high percentages. The objective of this study was to use stock plant shading, in a commercial setting, to increase rooting success of this hard-to-propagate species.

MATERIALS AND METHODS

A 35-year-old hedge of paperbark maple at Hoogendoorn Nurseries (Middletown, RI), measuring ~6 ft high, 5 ft wide, and 60 ft long was heavily pruned in March 1996. On 5 May, as buds began to flush, 10 ft of hedge was covered with two layers of 50% saran shade cloth, and another 10 ft was covered with one layer of 50% saran. The remainder of the hedge was left uncovered. The double saran layer produced an 80% shade, and the single layer produced 60% shade. Shading was left in place until cuttings were taken on 21 June 1996. Nursery workers harvested and prepared cuttings as described by Hoogendoorn (1985). Briefly, cuttings were taken early in the morning and chilled overnight. Prior to sticking, cuttings were trimmed to an 8 in. length with two sets of leaves, soft terminal tips removed. Unwounded cuttings were treated with Hormodin #3 (0.8% IBA in talc) and stuck to a depth of 3 in. in coarse sand. The number of cuttings prepared was: 3900, control; 700, 60% shade; and 450, 80% shade. Overhead mist was applied from 8:30 AM to 6:00 PM, for 12 sec every 10 min. Fungicides were used on a regular schedule. Percent rooting, root number, and length of the longest root were assessed on 1 Oct. 1996.

RESULTS AND DISCUSSION

The rooting of light-grown (control) cuttings was similar to that reported by Hoogendoorn in 1985. Stock plant shading dramatically improved rooting percentages. The number and length of roots also improved somewhat with shading (Fig.

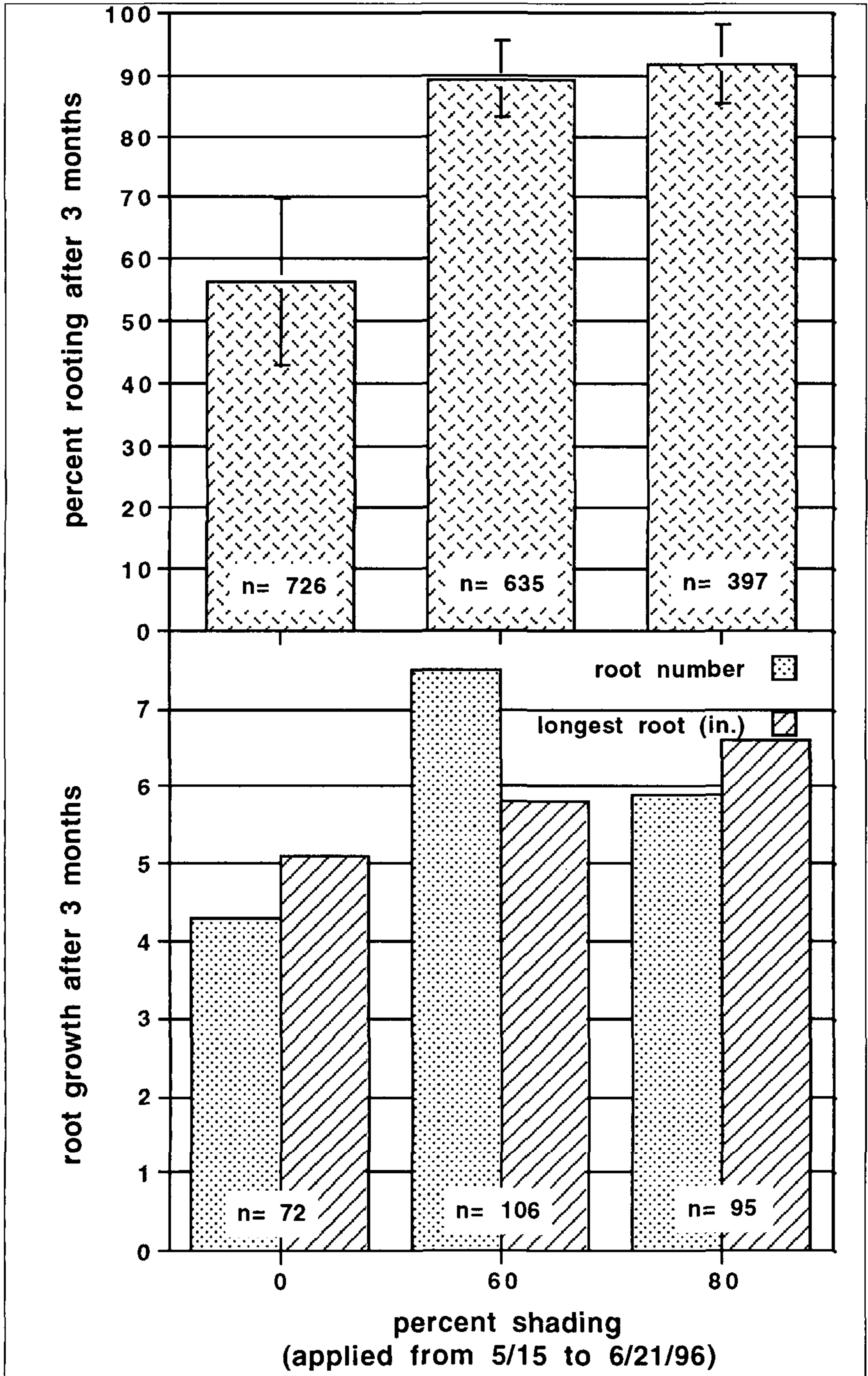


Figure 1. Rooting of paperbark maple cuttings in relation to stock plant shading.

1). High rooting percentages were apparent with shading of 60% or higher, similar to the results Maynard and Bassuk (1991) obtained with cuttings of shaded hornbeam stock plants. On the stock plant, shaded cuttings were nearly indistinguishable from full-light-grown cuttings; shaded shoots possessed somewhat longer internodes (data not presented). In the rooting bench, shaded cuttings retained more leaves, possibly because of increased rooting, as virtually all unrooted cuttings lost their leaves. Shaded cuttings also produced fuller, better branched root systems than full-light cuttings. Using a double layer of saran (80% shade) was not a significant improvement over a single layer (60% shade).

CONCLUSION

The high rooting percentages obtained using cuttings harvested from shaded stock plants has great implications for the nursery production of own-rooted paperbark maples. At such high rooting percentages, cuttings are less costly to produce and might even be stuck to root directly in the production container, reducing transplant shock and losses, and decreasing production time. The increase in root number and length seen on shaded cuttings might also improve transplant success, reduce production losses, and yield better quality liner material.

Placing a single layer of saran shade cloth over an existing stock block is an inexpensive addition to the propagation system that can dramatically improve propagation success.

LITERATURE CITED

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