

## Cutting Propagation of *Ligustrum lucidum* 'Tricolor'

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Large-scale propagation of *Ligustrum lucidum* 'Tricolor', which is a garden cultivar of glossy privet with variegated leaves, has been impossible because of difficulties encountered in cutting propagation. This cultivar, however, has great promise for landscaping purposes. In this study, the effects of the physiological status and shading on the stock plants, as well as different types of cuttings on the rooting of the 'Tricolor' were investigated.

### MATERIALS AND METHODS

**Experiment 1. The Effect of Age and Quality of Stock Plants on the Rooting Rate of the Cuttings.** Four different kinds of stock plants of *Ligustrum lucidum* 'Tricolor' were used in the experiment: a 3-year-old seedling selected from self-pollinated seeds (3S), a 2-year-old and a 5-year-old cutting-grown plant (2C and 5C), and a 5-year-old grafted plant (5G). The 8-cm, two-leaf cuttings were taken on 24 July 1990, then treated with 20 ppm of indole-3-butyric acid (IBA) for 16 h. The next day, 40 to 100 cuttings were randomly selected and set in a propagation medium consisting of Kanuma soil, peat moss, and vermiculite (1 : 1 : 1, by volume) (KPV soil) in a sealed tunnel.

**Experiment 2. The Effect of Shading Stock Plants on the Rooting Rate of the Cuttings.** Cuttings were taken from the 5G stock plants, which had been shaded for 6 weeks from 12 June 1990, at the level of 0%, 50%, 75%, and 87.5 %, respectively, using black cheesecloth. Fifty to sixty cuttings were selected from each of the treatments, and grown on in the same way as in Experiment 1, except for the IBA treatment at 40 ppm. To test the effect of duration of shading, 6-year-old grafted stock plants were given 50% shade for 0, 1, 2, 3 weeks, respectively, until 17 Aug. 1991, when 60 cuttings were taken from each stock plant and treated just as in Experiment 1.

**Experiment 3. The Effect of Timing of Taking Cuttings and Setting, Presence of Leaves, and Concentration of IBA on the Rooting Rate of the Cuttings.** Cuttings were taken from 12-year-old grafted stock plants on two different dates, 27 Feb. and 10 March 1997. All the cuttings except those taken on 10 March were kept at 5C until the day before setting. Four hundred 10-cm cuttings were taken on each date and then divided into two groups according to the setting date, 11 and 19 March 1997. Each of the two groups was further divided into four groups with four different kinds of treatment; without leaves, with two leaves left on the top, and 10 or 20 ppm IBA (25 cuttings per treatment). After setting in KPV soil, all the treated cuttings were kept in a 50% shaded tunnel prepared in an unheated greenhouse with 50% shading.

## RESULTS AND DISCUSSION

**Experiment 1.** Cuttings from the 3S and 2C stock plants showed a higher rooting rate than the others, suggesting that younger stock plants would give a high propagation efficiency using softwood cuttings.

**Experiment 2.** Rooting efficiency was the highest under 50% shade and was reduced according to the level of shading, whilst no shading greatly inhibited rooting.

The 1-week shading of the stock plants gave the highest rooting efficiency and the shading duration seemed to be negatively correlated to the rooting rate. Shading of the older stock plants was considered to be effective, suggesting that 50% shading of stock plants for 1 week before taking cuttings might give the best results when taken in early August.

**Experiment 3.** Cuttings without leaves showed a markedly higher rooting rate than those with two leaves, regardless of the cutting and setting times. Generally, cutting propagation of evergreen plants is not done at the same time of year as deciduous plants. These results, however, clearly indicated that *L. lucidum* 'Tricolor' could be propagated using defoliated cuttings even when taken from older stock plants during dormancy. From these results, a 2-year cutting propagation cycle is suggested to propagate *L. lucidum* 'Tricolor' as follows. Firstly, cuttings from older stock plants grown under shade are used to produce new stock plants when they are 2-years old. Then secondary cuttings are taken from these new stock plants for growing on to plants for sale as well as for the source of stock plants in the next propagation cycle. Material obtained from stock plants at the time of winter pruning is also shown to be a useful source for cuttings.