

(026) Timing and Hormone Effects on Rooting of *Euonymus japonicus* 'Microphyllus Butterscotch' Cuttings

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Euonymus japonicus 'Microphyllus Butterscotch' is a beautiful ornamental plant for green hedges and group planting in the landscape. To produce quality rooted cuttings for the demanded market, stem cuttings were collected in June, July, August, and early September from newly sprouted twigs and treated with IBA, NAA, and powdery IBA at 1000, 3000, and 8000 mg·L⁻¹, respectively. Rooting percentage and rooting quality (number of roots per cutting) were after two months. Timing significantly affected rooting of stem cuttings. The rooting percentage ranged from 10.2% (September) to 22.4% (July). Hormone greatly improved the rooting of stem cuttings. The highest rooting rate (63.5%) and the highest number of roots per cutting (7.5) were observed under the treatment of powdery IBA (hormodin #3, 8000 mg·L⁻¹). Powdery IBA had better effect than that of liquid IBA and NAA. Low concentrations (1000 and 3000 mg·L⁻¹) of liquid IBA yielded 35.6% and 30.3% rooting rates, respectively. However, high concentration of IBA (8000 mg·L⁻¹) and NAA (8000 mg·L⁻¹) produced 20.2% and 19.7% and reduced the ability of root elongation. NAA at 1000 and 3000 mg·L⁻¹ had the rooting percentage lower than that of IBA. The findings confirmed that growth regulator could be a useful for increasing rooting percentage and quality of *Euonymus japonicus* 'Microphyllus Butterscotch'. Cuttings should be collected in July or August and prepared with hormodin#3.

(027) Effects of Flurprimidol and Fertilization on Growth Regulation of Knockout® Rose in Landscapes

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Knockout® roses are popular shrub roses that are more disease resistant and have become popular in southern landscapes. They can easily grow to 5 ft tall and require regular trimming. Plant

growth regulators such as gibberellic acid biosynthesis inhibitors may reduce shoot growth thus reduce labor requirement for maintaining a rose planting. Two experiments were conducted to evaluate the effects of granular flurprimidol (Cutless 0.33 G) and controlled-release fertilizer (CRF) Osmocote 14–14–14 on Knockout® Red roses established in landscape beds. In Experiment 1, Cutless 0.33G was applied at 0, 5, 10, or 20 lb/1000 ft² (0, 0.7, 1.5, or 3 lb a.i. per acre) as single applications in spring or two applications of 5 and 10 lb/1000 ft² applied at 3 months apart in spring and late summer. In Experiment 2, Cutless 0.33G was applied at 0, 7, or 14 lb/1000 ft² to plants being fertilized with CRF at 0, 2, or 4 lb/1000 ft² nitrogen rates with the 4 lb/1000 ft² treatment applied as two applications. In Experiment 1, plant size index at Sept. 2010 and Mar. 2011 indicated that two applications at 10 lb/1000 ft² product provided prolonged growth control without the need for trimming. This treatment also resulted in more flowers and higher overall visual quality among all treatments. In Experiment 2, plants treated with 14 lb/1000 ft² Cutless and fertilized with 4 lb/1000 ft² N rate had the highest visual quality. In both experiments, plants treated with flurprimidol had darker foliage than untreated plants.

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(028) Greening the Highways—Out-Plant Survival of Deciduous Trees in Stressful Environments

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Highway landscapes are highly stressful environments for plant growth. Furthermore transportation departments lack a budget for proper maintenance following installation. These constraints have led to observations of less than 10% survival rates (Mathers, 2010). Production of nursery material is an important factor for success with transplant and survival. Ohio State University has developed a tree liner production system utilizing a retractable roof greenhouse (RRG) (Cravo Equipment, Ltd., Brantford, ON, Canada) that has reduced production time, increased consistency amongst the crops grown, and increased survival in out-planted material as compared with conventional production systems (Mathers et al, 2010). To understand survival in stressful environments, six trial sites were planted in June 2010 along Highway 401 in Toronto, Ontario. In total 5,042 trees were planted, a subset of trial species included: 140 Autumn Blaze Maple (*Acer freemannii* 'Jeffersred'), 125 Whitebarked Himalayan Birch (*Betula jacquemontii*), 80 Hackberry (*Celtis occidentalis*), and 180 Honey Locust (*Gleditsia triacanthos*). All trees were produced in 3-gal containers in either a RRG or in a vented-gutter house (VGH) and were greater than 120