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Abstract. The influence of fertilization on shoot growth, leaf gas exchange, leaf chlorophyll content, and mineral content was monitored on sweetgum (*Liquidambar stryraciflua* L.), Japanese pagoda tree (*Styphnolobium japonicum* Schott), and European ash (*Fraxinus excelsior* L.) over a 3-year period after planting in the urban environment. The research was carried out on newly planted trees that were placed in different urban sites and fertilized after planting. Fertilization was repeated for 2 years after planting at the beginning of the spring. There were contrasting results according to the species and the year of measurements. Fertilization was to a limited extent effective in the first year after planting but failed to provide better results in the following years. Thus, the results of this research do not support the utility of fertilizer application as a method to improve plant establishment, growth, or physiology after transplanting in the urban environment.

Key Words. *Fraxinus excelsior*; Leaf Gas Exchanges; Leaf Mineral Content; *Liquidambar styraciflua*; Plant Nutrients; Plant Physiology; *Styphnolobium japonicum*.

Abstract. The effects of four commercially available film-forming polymers (Bond, Designer, Spray Gard, Nu-Film-P) on disease severity of po dery mildew (*Microsphaera alphitoides* Griffon and Maubl.) on English oak (*Quercus robur* L.) and *Guignardia* leaf blotch (*Guignardia aesculi* (Peck) Stewart) on horsechestnut (*Aesculus hippocastanum* L.) were examined in a field experiment. In addition, a comparative evaluation of the fungicide penconazole, commercially used for powdery mildew control, was conducted. Effects on tree vitality were also assessed by measuring leaf chlorophyll fluorescence and chlorophyll concentrations. Irrespective of tree species, Nu-Film-P and Spray Gard did not significantly infl ence disease severity of powdery mildew and *Guignardia* leaf blotch. Likewise, no significant effects of these two film-forming polymers on chlorophyll fluorescence and chlorophyll content were recorded. Reduction in disease severity following spray applications of the film-forming polymers Bond and Designer was statistically comparable with penconazole. None of the film-forming polymers and fungicide evaluated was phytotoxic to the test trees. Results suggest that application of an appropriate film-forming polymer may provide a useful addition to existing methods of plant disease control.

Key Words. Disease Control; Foliar Pathogens; Fungicides; Integrated Disease Management; Urban Trees.

Abstract. Japanese beetle (*Popillia japonica*) adults are a major insect pest of cultivated roses, causing extensive feeding damage to both foliage and flowers. Insecticides are primarily used to minimize adult injury to roses; however, insecticides may be harmful to natural enemies and their use may be restricted, particularly in public gardens. An alternative management strategy is the use of rose genotypes that express some level of herbivore tolerance. However, there is little information on rose genotypes that are tolerant or less susceptible to adult Japanese beetle leaf feeding. This study evaluated the susceptibility of three new rose genotypes introduced into the Crasberg Rose Garden at the Chicago Botanic Garden, Glencoe, Illinois, U.S. The genotypes were *Rosa* 'Radrazz' Knock Out™, *Rosa* 'Crimson Bouquet,' and *Rosa* 'Love and Peace.' Two laboratory experiments, a no-choice and multiple-choice leaf-feeding assay, were conducted in 2002 and 2003 to assess susceptibility of the new rose and two established genotypes to Japanese beetle adult feeding. Although there were significant statistical differences between the rose genotypes, in almost all cases the mean percentage damage rating exceeded 50%. Mean percentage damage ratings for the 2002 and 2003 no-choice experiments ranged from 15% to 78% and 60% to 75%, respectively. Mean percentage da age ratings for the 2002 and 2003 multiple-choice experiments ranged from 34% to 58% and 47% to 53%, respectively. These results indicate that all the rose genotypes tested are susceptible to Japanese beetle adult feeding and may not be appropriate selections for use in areas with established Japanese beetle populations.

Key Words. Host Plant Resistance; Integrated Pest Management; Japanese Beetle; Plant Health; *Popillia japonica; Rosa* spp.

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Abstract. Mature white oaks (*Quercus alba* L.) averaging 61 cm (24.4 in) dbh and in a moderate state of decline were treated with 0.8 g active ingredient (a.i.)/cm (2 g/in) paclobutrazol (PBZ) on 11 April 1995, and again with 1.2 g a.i./cm (3 g/in) on 8 October 1998, as a basal drench. PBZ produced no reduction in leaf size or twig growth of the white oaks at any time during the 7 years of the study. Rapidly growing plants may be more effectively growth-regulated by PBZ. Fine root density, starch content of the woody roots, and percentage of mycorrhizal root tips were unaffected by PBZ treatment. This is the first direct evidence that mycorrhizae are not reduced by the fungicidal properties of PBZ. The root zone of these trees was mulched but laterally restricted. Root density and mycorrhizae may have already been high under these conditions, limiting the ability of PBZ to improve them further.

Key Words. Carbohydrates; Plant Growth Regulator; *Quercus alba*; Tree Growth Regulator.

Abstract. Removal of tall-growing trees on power line rights-of-way is necessary for the safe and reliable transmission of electricity. Cut-stump herbicide treatments have been used at different times of the year to control resprouting and suckering of unwanted hardwood trees on power line corridors in the northeastern United States with varying degrees of success. Growing season applications have typically been thought to be most effective; however, if a high percentage of mortality could also be achieved by selecting an appropriate herbicide mix for early-spring and late-fall applications, vegetation managers would have more flexibility in prescribing and scheduling treatments. The authors evaluated mortality and amount of herbicide applied for April, June, and November using operational-style cut-stump treatments with three herbicide mixes Accord®+Arsenal®, Garlon 4® + Stalker®, and Pathway®. After 2 years, over 90% mortality was achieved for at least one herbicide mix at all three appl cation dates. Mortality varied by both mix and application date, consistent with herbicide mode of action. In April and June, Accord® + Arsenal® had lower mortality than Garlon 4® + Stalker® or Pathway®, but in November, it resulted in slightly higher mortality than the other two mixes. The Garlon 4® + Stalker® mix and Pathway® had equally high mortality for all treatment dates. Successful use of the cut-stump method in spring through fall may be contingent upon matching herbicide mix to the date of application. These results indicate that Garlon 4® + Stalker® or Pathway® could be used April through November, but applications with Accord® + Arsenal® should be made in late summer or fall. These recommendations should be evaluated in other regions and with additional target tree species. The quantity of herbicide used by operational crews varied among application dates and herbicide mixtures and appeared to be strongly influenced by spray equipment and the person applying the herbicide. Minor refin ments in application techniques and equipment have the potential to reduce the amount of herbicide used without adversely affecting efficacy, and warrant further consideration.

Key Words. Cut Surface; Electric Transmission Lines; Glyphosate; Herbicide Use Rates; Imazapyr; Picloram; Triclopyr; 2,4-D; Vegetation Management.

Abstract. Two imidacloprid trunk-injection products (Pointer™ and Imicide®) were applied to green ash (*Fraxinus pennsylvanica* Marsh.) in May and July to compare the concentrations of imidacloprid in sap and leaf and trunk tissues after the injections. Sap samples were extracted from shoots 0, 3, 7, 30, 60, and 90 days after treatment and analyzed for imidacloprid. Dry leaf samples were analyzed for imidacloprid at 30 and 90 days after treatment. Combined xylem and cambial zone samples were analyzed for imidacloprid at 90 days after treatment at 0.5 m (1.65 ft) and 1.0 m (3.3 ft) above the injection sites. Sap imidacloprid concentrations in trees treated in May with Pointer were significantly higher than the untreated control at 7 days after treatment ($P < 0.05$) but were not significantly different from the control on other days or different from Imicide on any day. Sap imidacloprid levels in trees treated in July with Pointer were significantly higher than the control at 30 days after treatment but were not significantly different from Imicide. Dry leaf imidacloprid levels in trees treated with Pointer were significantly higher than the Imicide and control treatments at 30 and 90 days after treatment. Xylem and cambial zone imidacloprid levels in trees treated with Pointer were signif cant higher than the Imicide and control treatments at 90 days after treatment at 1.0 m (3.3 ft) above the injection sites but were not significantly higher at 0.5 m (1.65 ft). No imidacloprid levels from Imicide were significantly different from those in the untreated control trees.

Key Words. *Agrilus planipennis*; Ash; Emerald Ash Borer; *Fraxinus pennsylvanica;* Imicide®; Imidacloprid; Injection; Insecticide; Pointer™; Trunk.