

ARBORICULTURAL ABSTRACTS

SUSCEPTIBILITY OF PURPLE- VERSUS GREEN-LEAVED CULTIVARS OF WOODY LANDSCAPE PLANTS TO THE JAPANESE BEETLE

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Twenty-six purple- or green-leaved cultivars representing 12 species of woody landscape plants were evaluated in the field for defoliation by Japanese beetles (*Popilla japonica*) over three growing seasons. We further evaluated the hypothesis that, within closely related plants, purple cultivars generally are preferred over green ones by comparing beetles' consumption of foliage in laboratory choice tests and their orientation to painted silk tree models baited with Japanese beetle lures. Cultivars of *Prunus cerasifera* and hybrids of that species were more heavily damaged than nearly all other plants tested. Among maples, *Acer palmatum* 'Bloodgood' and *A. platanoides* 'Deborah' and 'Fairview' were especially susceptible. None of the cultivars of *Berberis thunbergii*, *Cercis canadensis*, *Cotinus coggygria*, or *Fagus sylvatica* were heavily damaged, regardless of foliage color. In the choice tests, purple Norway maples were preferred over green ones in three of four comparisons, but preference varied within the other plant genera. In fact, more beetles oriented to green-leaved tree than to purple ones. Our results indicate that within a genus, purple-leaved plants do not necessarily sustain more damage than green-leaved ones. Widespread use of certain purple-leaved cultivars of generally susceptible plant species probably contributes to the perception that purple-leaved plants, overall, are preferred. Purple-leaved cultivars of redbud, European beech, smoketree, and barberry, or the purple-leaved *Prunus virginiana* 'Canada Red' or *Malus × hybrida* 'Jomarie' may be suitable substitutes for more susceptible purple-leaved plants in landscapes where Japanese beetles are a concern. (HortScience 2002. 37(2)362–366)

A STUDY OF THE POTENTIAL FOR DEVELOPING A BIOMASS FUEL SUPPLY FROM TREE MANAGEMENT OPERATIONS IN LONDON

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This paper sets out the results of work undertaken by Econegy, Ltd., and the London Tree Officers' Association (LTOA) with support from the BioRegional Development Group to investigate the potential for developing a supply of biomass fuel for renewable energy production from woody material generated by arboricultural operations in London. Currently there is an alliance of renewable energy policies with waste policies that seek to reduce the volume of organic carbon-based materials going into landfill sites. The result is the creation of an opportunity to divert significant volumes of clean woody arisings into renewable energy production. The study surveyed 31 contractors, out of an estimated 135 contractors working within the greater London area, for the volume, weight, and type of arboricultural arisings that they dealt with. It also asked them for information about travel movements in disposing of arisings. From this sample, two figures were estimated for London's arboricultural arisings by weight. These were (1) an estimate from vehicle movements, which yielded a total of 205,470 tonnes, and (2) contractors' estimates of tonnages moved, which yielded 106,110 tonnes. Taking a more conservative figure of 100,000 tonnes, the study then proceeded to look at the feasibility of using this material for biomass energy production and the potential for CO₂ emissions from vehicles involved in transport of the material. It is concluded that at present a significant volume of material is disposed of in a number of ways that are costly to the environment, contractor, and client. This material could allow for the development of a biomass fuel supply. (Arboric. J. 2001. 25:225–288)

MEDIA COVERAGE OF INTEGRATED PEST MANAGEMENT IN MAJOR URBAN NEWSPAPERS

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Support from a largely urban population is needed to increase funding for development of integrated pest management (IPM) programs and encourage implementation in production systems for agricultural commodities. This support must be generated through increased communication between scientists and the public. Extension specialists, being responsible for communicating research results from land grant universities, must work to improve interactions with the news media to ensure increased public awareness and appreciation of IPM. This study was conducted to assess how much information on IPM is being communicated to the public by newspapers. Types of news items, such as news stories, feature columns, and editorials published in major urban newspapers, were enumerated for the years 1982 to 1995 using the Data Times Online (service now accessed through www.bellhowell.infolearning.com) archive. The relationship of these items to IPM in urban and agricultural settings was determined to assess the types of information being communicated to the urban population. Overall, the numbers of articles published annually in each newspaper were relatively low. Much of the content dealt with urban settings and did not serve to improve understanding of the role of IPM in agriculture. Recommendations are offered for improving communications of research scientists and extension specialists with those who write the news to increase public awareness and acceptance of IPM. (*Am. Entomol.* 2000. Spring:56–63)

DIFFERENCES IN NITROGEN ECONOMY OF TEMPERATE TREES

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Twenty-four temperate tree species were classified into three groups based on cluster analysis of relative growth rate, nitrogen concentration, nitrogen-production efficiency, nitrogen-distribution ratio, and nitrogen-use efficiency as follows: Group I (Asteridae and Rosidae), Group II (Dilleniidae and Hamamelidae), and Group III (Coniferopsidae). Relative growth rate (RGR) was

high in Group II, moderate in Group I, and low in Group III. The regression coefficient for the relationship between RGR and leaf nitrogen concentration was higher in Group II than in Group I, and no relationship was observed in Group III. Parameter analysis of RGR indicated that RGR per unit leaf nitrogen was important for all three groups, but the allocation of nitrogen to leaves was important for all three groups, and the allocation of nitrogen to leaves was particularly important in Groups I and II. The ratio of dark respiratory rate (R) to net photosynthesis (A) was higher in Group I than in Group II. Neither A nor R was measured in the Group III species. A linear relationship was observed between leaf nitrogen concentration and A in Group II, but this relationship was not evident in Group I. (*Tree Physiol.* 2001. 21:712–624)

EVALUATION OF ELEVEN NEWLY ACQUIRED ASIAN ELMS FOR THEIR SUITABILITY TO ADULT ELM LEAF BEETLE (COLEOPTERA: CHRYSOMELIDAE)

Frederic Miller and George Ware

Eleven newly introduced Asian elm species and one reference species were evaluated in no-choice laboratory bioassays for their suitability to the adult elm beetle *Xanthogaleruca* (= *Pyrrhalata*) *luteola*. Adult female beetles laid significantly more eggs on *U. bergmanniana*, *U. bergmanniana* var. *lasiophylla*, *U. castaneifolia*, *U. gaussenii*, *U. lamellosa*, and *U. pumila*, indicating these species were most for ELB. The least suitable species for adult beetle feeding and reproduction were *U. chenmoui*, *U. elongata*, *U. glaucescens*, *U. propinqua* var. *suberosa*, and *U. szechuanica*. Adult female beetles laid eggs within to seven to ten days, or four days earlier, on the most suitable elms compared with beetles feeding on the least suitable elms. Adult male and female longevity was significantly affected by host suitability, with adult males and females living nearly twice as long on the most suitable elms compared to the less suitable elms. Least suitable species *U. chenmoui*, *U. elongata*, *U. glaucescens*, *U. propinqua*, and *U. szechuanica* offer little resistance to elm leaf beetle and show promise for future elm breeding programs. (*J. Environ. Hort.* 2001. 19(2):96–99)

GROWTH AND MORTALITY OF DOGWOOD CULTIVARS IN ALABAMA**B.R. Hardin, D.J. Eales, C.H. Gilliam, G.J. Keever, and J.D. Williams**

An open-field evaluation of 38 dogwood (*Cornus*) cultivars was conducted in central Alabama, U.S., from May 1996 to March 1998. Mortality increased dramatically in giant dogwood (*C. controversa*), kousa dogwood cultivars (*C. kousa*), and kousa × flowering dogwood hybrids (*C. kousa* × *florida*) from August 1996 to August 1997. Little mortality was observed for the flowering dogwood selections (*C. florida*) during this same period. Further characterization, based on height and stem diameter increases, was conducted on 23 flowering dogwood cultivars. Greatest average annual height and stem

diameter increased for cultivars with white bracts and green foliage were observed in 'Cloude 9', 'Fragrant Cloud', 'Ozark Spring', 'Springtime', 'Weaver', 'Wech Bay Beauty', and 'Worlds Fair'. Lowest average annual height and stem diameter increases occurred with 'Autumn Gold' and Wonderberry®. Among the selections with red or pink bracts and green foliage, 'Stoke's Pink' and Welch's Junior Miss' had greater annual average increases in height and stem diameter than 'Purple Glory'. Annual average increases in height and final heights were similar among all cultivars with variegated foliage, with 'First Lady' showing the greatest annual average increase in stem diameter and final stem diameter. (J. Environ. Hortic. 20(1):16–20.