

## ARBORICULTURAL ABSTRACTS

### OVERWINTERING AND COMPARATIVE SAMPLING OF *NEOSEIULUS FALLACIS* (ACARI: PHYTOSEIIDAE) ON ORNAMENTAL NURSERY PLANTS P.D. Pratt and B.A. Croft

The predatory mite *Neoseiulus fallacis* (Garman) is an important biological control agent of spider mites in many agroecosystems, including ornamental nurseries. In this study, sampling methods, tendencies to overwinter among a range of plant types, and the effect of winter protective practices were assessed for *N. fallacis* females. Ten spider-mite-infested plant species representing a range of five plant types (conifer, shade tree, evergreen shrub, deciduous shrub, herbaceous perennial) were inoculated with 100 adult female *N. fallacis* in late autumn. Early the following spring, *N. fallacis* was extracted from each plant species by either washing plant parts (leaves, branches, trunks–crowns) in 70% ethanol and filtering contents or placing plant parts into separate Berlese funnels for 5 days. The washing method extracted more *N. fallacis* than the funnel method. When comparing overwintering among a range of plant types, higher densities of *N. fallacis* were extracted from conifers > evergreen shrubs > herbaceous perennials = deciduous shrubs = shade trees. With respect to overwintering location of *N. fallacis* within plants, higher densities of *N. fallacis* were recovered on leaves than trunks–crowns; branches were intermediate. Densities of *N. fallacis* were positively correlated with those of their spider mite prey. High densities of *N. fallacis* were collected from plants that were held in a greenhouse versus those left unprotected or under a sheet of polyethylene plastic. Manipulating overwintering sites for the conservation of phytoseiid natural enemies is discussed. (Environ. Entomol. 2000. 29(5):1034–1040)

### METHOD OF APPLICATION OF UNICONAZOL AFFECTS VEGETATIVE GROWTH OF PECAN

Charles J. Graham and J. Benton Storey

Pollarded 'Wichita' pecan (*Carya illinoensis* (Wang) K. Koch) trees received 2 g uniconazol (UCZ) per tree

using four application methods (trunk band, canopy soil injection, crown soil injection, and crown drench). All application methods increased trunk diameter but reduced shoot length, number of lateral shoots per terminal, nodes per terminal, internode length, and leaflets per compound leaf. Only the crown drench reduced leaf area. Area and dry weight per leaflet and leaflet chlorophyll concentration were not affected by UCZ application. Effectiveness in growth reduction, as assessed by shoot elongation, was crown soil drench > crown soil injection > canopy soil injection > trunk band > control. All application methods increased viviparity. However, total yield per tree, nut size, and percentage of kernel were not affected. Chemical name used: (E)-1-(p-chlorophenyl)-4,4-dimethyl-2-(1,2,4-triazol-1-yl)-1-penten-3-ol (uniconazol). (HortScience 2000. 35(7):1199–1201)

### OCCURRENCE OF DOGWOOD ANTHRACNOSE, SPOT ANTHRACNOSE, AND BOTRYTIS BLIGHT IN NATIVE STANDS OF FLOWERING DOGWOOD IN NORTH ALABAMA

Austin Hagan and Jackie Mullen

In North America, dogwood anthracnose (*Discula destructiva*) was the most common and damaging disease identified in stands of native flowering dogwood (*Cornus florida*). In spring 1992 and 1993, this disease was observed at 59% and 64%, respectively, of the forest and park sites surveyed. Highest incidence and severity of dogwood anthracnose was recorded in the Appalachian Mountains and adjoining foothills of the Piedmont at elevations of 372 to 558 m (1200 to 1800 ft) in the northeastern corner of Alabama near Georgia and Tennessee. At selected sites in Cherokee, Cleburne, DeKalb, Jackson, and Madison counties, approximately 90% to 100% of the trees examined displayed diagnostic symptoms of dogwood anthracnose. Extensive blighting of the leaves, shoot dieback, epicormic shoot formation, and sometimes tree death were noted. Lower levels of anthracnose damage were recorded on trees in several additional counties in northeast Alabama. Survey results indicate that this disease has not spread onto flowering dogwood in other counties in North Alabama. Spot an-

thracnose (*Elsinoe corni*) and Botrytis blight (*Botrytis cinerea*) were found far less frequently and at fewer locations on flowering dogwood than dogwood anthracnose. Typically, damage attributed to either disease was unobtrusive and of little threat to tree health. (J. Environ. Hortic. 2000. 18(3):154–159)

### **TREE ROOT INTRUSION IN SEWER SYSTEMS: REVIEW OF EXTENT AND COSTS**

**Thomas B. Randrup, E. Gregory McPherson, and Laurence R. Costello**

Interference between trees and sewer systems is likely to occur in old systems and in cracked pipes. Factors that contribute to damage include old pipes with joints, shallow pipes, small-dimension pipes, and fast-growing tree species. Because roots are reported to cause >50% of all sewer blockages, costs associated with root removal from sewers is substantial. In smaller-dimension pipes, root removal every year or every other year is common. Major resources are put into replacement and renewal of existing pipes, which is sometimes accelerated because of root intrusion. Collapse repair costs are greater than new construction, but costs associated with root removal may be one-sixth the cost of pipe replacement/renewal due to roots. Major breaks and stoppages seem to occur more frequently in older systems than in new. Therefore, it seems worthwhile to carry out preventative maintenance of the older parts of the sewer system. (J. Infrastruct. Sys. 2001. 7:1)

### **SUSCEPTIBILITY OF ILEX SPECIES, HYBRIDS, AND CULTIVARS TO FLORIDA WAX SCALE (CEROPLASTES FLORIDENSIS COMSTOCK)**

**Greg Hodges, John M. Ruter, and S. Kristine Braman**

Susceptibility of 231 holly species, hybrids, and cultivars to Florida wax scale (*Ceroplastes floridensis* Comstock) were evaluated on field-grown plants in Tifton, Georgia. Florida wax scale have two generations per year in this region. Population ratings on different parental lines were grouped as either low populations (<10 scales per 60-second count), moderate populations (11–20 scales per 60-second count), high populations (21–40 scales per 60-second count), and very high populations (>40

scales per 60-second count). Taxa from the study rated as being least preferred (low populations) by the Florida wax scale included those with *I. crenata*, *I. buergeri*, *I. glabra*, *I. myrtifolia*, *I. verticillata*, and *I. vomitoria* within parental lines. Those prone to heavy infestations were *I. aquifolium*, *I. × attenuata*, *I. cassine*, *I. ciliospinosa*, *I. cornuta*, *I. × koehneana*, *I. latifolia*, *I. × meserveae*, *I. opaca*, *I. purpurea*, *I. rugosa*, and *I. serrata*. Other scale insects noted on the hollies included barnacle wax scale (*Ceroplastes cirripediformis* Comstock), Indian wax scale (*Ceroplastes ceriferus* (Fabricius)), European fruit lecanium (*Parthenolecanium corni* Bouche), Brown soft scale (*Coccus hesperidum* Linneaus), tea scale (*Fionmia theae* Green), latania scale (*Hemiberlesia lataniae* (Sign.)), and a pit scale (*Asterolecanium puteanum* Russell). (J. Environ. Hortic. 2001. 19(1):32–36)

### **SACRAMENTO'S PARKING LOT SHADING ORDINANCE: ENVIRONMENTAL AND ECONOMIC COSTS OF COMPLIANCE**

**E. Gregory McPherson**

A survey of 15 Sacramento parking lots and computer modeling were used to evaluate parking capacity and compliance with the 1983 ordinance requiring 50% shade of paved areas (PA) 15 years after development. There were 6% more parking spaces than required by ordinance, and 36% were vacant during peak use periods. Current shade was 14%, with 44% of this amount provided by covered parking. Shade was projected to increase to 27% (95% CI 24–37%) when all lots in the sample were 15 years old. Annual benefits associated with the corresponding level of tree shade were estimated to be US\$1.8 million (CI US\$ 1.5–2.6 million) annually citywide, or US\$2.2 million less than benefits from 50% shade (CI US\$ 1.4–2.5 million). The cost of replacing dying trees and addressing other health issues was US\$20 million. Strategies for revising parking ordinances to enhance their effectiveness are presented. (Landscape Urban Plann. 2001. 57:105–123)