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**GROWTH AND PHENOLOGY OF ESTABLISHED *TILIA CORDATA* STREET TREES IN RESPONSE TO DIFFERENT IRRIGATION REGIMES** ..... 3

**Abstract.** The effect of different irrigation regimes on growth and phenology of 100 established *Tilia cordata* street trees was investigated during the growth period of 2004. Relative stem increment increased significantly when irrigating with 280, 320, or 640 L (74, 84.5, and 169 gal) of water throughout the growth period. The length of the growth period was affected by irrigation regimes in regard to termination of growth, as the trees receiving 640 L (169 gal) had a growth period significantly longer than the control trees. These results indicate that growth and growth period of street trees are augmented by an increase in the amount of water available to them. In addition, block effects concerning the start of the growth period were observed, as trees situated on the northern side of the street initiated stem growth 7 days earlier than the trees on the southern side.

**Key Words.** Irrigation; Phenology; Stem Growth; Street Trees; *Tilia cordata*; Tree Management; Urban Climate; Water Balance.

Kerienne R. La France and A. Richard Westwood  
**AN ASSESSMENT OF TREE BANDING TECHNIQUES TO CAPTURE CANKERWORM DEFOLIATORS OF ELM AND ASH TREES IN WINNIPEG, MANITOBA, CANADA** ..... 10

**Abstract.** Fall cankerworm (*Alsophila pomataria* L.) and spring cankerworm (*Paleacrita vernata* Peck) are widely distributed across North America. The larvae feed on the leaves of several species of urban street trees, and repeated severe defoliation can cause a reduction in growth and may contribute to tree mortality. This study examined the effectiveness of Tanglefoot™-covered tree bands and the Bug Barrier Tree Band™ in preventing the upward movement of female cankerworms on the trunk by comparing capture rates of adult moths. There were no significant differences among tree species in the number of *A. pomataria* adults caught, while *P. vernata* showed a preference for elm (*Ulmus* spp.) over ash (*Fraxinus* spp.). Up to 25% of female moths crossed the Bug Barrier Tree Band, and up to 20% of females crossed the Tanglefoot-covered bands in three experiments in 2002 and 2003. There was no significant difference between the two band types in the proportion of females crossing bands. Larval populations were not large enough to determine the effect of the bands on reducing tree defoliation. The Bug Barrier Tree Band was easier to install and remove than the Tanglefoot-covered bands and required considerably less clean-up afterward.

**Key Words.** *Alsophila pomataria*; Defoliation; *Paleacrita vernata*; Tanglefoot Bands.

Edward F. Gilman  
**DEFLECTING ROOTS NEAR SIDEWALKS** ..... 18

**Abstract.** Concrete sidewalks 10 cm (4 in) thick measuring 1.2 m (4.5 ft) wide by 5 m (16.5 ft) long were installed in spring 1996 with and without barriers designed to deflect roots. Forty-eight *Platanus occidentalis* from #15 containers were planted 0.75 m (30 in) from sidewalks and irrigated regularly to encourage rapid growth. Identical studies were installed on one well-drained and one poorly drained site located about 18 km (11.2 miles) apart. Barriers included 30 cm (12 in) deep DeepRoot, Biobarrier®, polyethylene (6 mil), a clean gravel layer (15 cm [6 in] deep; 2 to 3 cm [0.8 to 1.2 in] diameter) under the walk, and a control without a barrier. Roots were excavated 8 years after planting. No roots grew in the gravel in the well-drained site, resulting in a significantly deeper root system (19 cm [7.6 in]) under the walks than all other treatments (11 cm [4.4 in]). Vertical root barriers did not increase root depth compared to the control on the well-drained soil. Gravel under the walk and Biobarrier were most effective on poorly drained soil. DeepRoot was the least effective vertical barrier on the poorly drained site; Biobarrier was the most effective. Treatments had no effect on diameter of roots growing under the sidewalks. Roots deflected by the vertical barriers were forced deeper into the soil, but many returned to the surface by the time they reached the opposite side of the walk. Gravel under the sidewalk appears to hold promise for reducing sidewalk damage, especially on well-drained sites.

**Key Words.** Gravel; Root Depth; Root Diameter; Urban Design; Vertical Root Barriers.

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Stephen C. Grado, Donald L. Grebner, Marcus K. Measells, and Amanda L. Husak

**STATUS, NEEDS, AND KNOWLEDGE LEVELS OF  
MISSISSIPPI'S COMMUNITIES RELATIVE TO URBAN FORESTRY..... 24**

**Abstract.** There is a need to determine levels of knowledge about and participation in urban and community forestry programs by local elected officials and other community planners. This project's goals were to identify the past and current involvement and future interest levels among Mississippi's small to large communities for urban forestry programs and assistance. A mail survey was sent to 296 Mississippi, U.S., communities. There were 159 surveys returned for a response rate of 53.7%. In general, the survey sample of Mississippi's communities indicated that a sizable number of officials have little or no awareness or interest in urban and community forestry. Among the Mississippi communities that wanted to establish urban and community forestry programs, most cited a lack of funding as the reason for not initiating projects or sustaining existing programs. Greater effort in disseminating information on funding opportunities is necessary, given that most Mississippi communities were aware of only a few national programs. Participation in statewide or local programs was minimal. Without good information and reliable funding, communities are limited in undertaking systematic planning and associated programs for tree resources in their community. In addition, effectively delivering information to communities to broaden public appreciation of urban forest resources is critical.

**Key Words.** Community Planners; Governmental Agencies; Large Communities; Mississippi; Program Assessment; Small Communities; Survey Research; Urban and Community Forestry.

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E. Thomas Smiley and Brian Kane

**THE EFFECTS OF PRUNING TYPE ON WIND LOADING OF *ACER RUBRUM*..... 33**

**Abstract.** The wind load, bending moment, height, and weight were determined for 81 red maples (*Acer rubrum*) before and after pruning. Trees were thinned, reduced, lion tailed, or stripped of foliage. All three pruning treatments reduced wind load significantly compared to unpruned trees at all tested velocities (11, 16, and 20 m/sec [25, 35, and 45 mph]). Reduction in wind load increased with increasing velocity. Differences in wind-load reduction between reduction pruning and thinning were not significant at any velocity. The reduction in wind load was linearly related to the amount of weight removed by pruning treatments. Compared to the same trees prior to pruning, the center of pressure height was significantly lowered on thinned and reduced trees, while the center of pressure height did not change on lion-tailed trees.

**Key Words.** Biomechanics; tree failure; tree pruning; wind resistance; windthrow.

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