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Abstract. Fifty-six lilac accessions were evaluated in a 4-year study for resistance to powdery mildew caused by *Microsphaera syringae*, bacterial blight caused by *Pseudomonas syringae* pv. *syringae,* and Alternaria blight caused by *Alternaria alternata*. Accessions included 39 cultivars of *Syringa vulgaris*, four of *S. prestoniae*, three of *S. hyacinthiflora*, two of *S. josiflexa*, two of *S. meyeri*, two of *S. reticulata*, and one each of *S. patula, S. chinensis, S. henryi*, and *S. microphylla*. Of these, six accessions were resistant or moderately resistant to Alternaria blight and powdery mildew, four to bacterial blight and Alternaria blight, and 20 to powdery mildew and bacterial blight. Two cultivars of *S. meyeri*, 'Dwarf Korean' and 'Palibin', were resistant to all three pathogens. During this study, the most serious disease of lilacs in middle Tennessee, U.S., was Alternaria blight.It caused severe leaf scorching and defoliation that began in early July. Powdery mildew and bacterial blight caused mostly superficial damage with little effect on growth.

Key Words. *Alternaria alternata*; Disease Complex; *Microsphaera syringae*; Plant Health Care; *Pseudomonas syringae* pv. *syringae*; *Syringa* spp.; Variety Selection.

Abstract. Two field trials were undertaken to determine the influence of fall fertilization using two commercially available, calcium-based fertilizers (calcium nitrate, calcium nitrate borate) and a high-nitrogen fertilizer (N:P:K = 24:7:7), at a range of concentrations, on the freezing and salinity tolerance of two urban tree species, evergreen oak (*Quercus ilex*) and holly (*Ilex aquifolium*). In both the 2001 and 2002 field trials, fertilization with calcium nitrate and calcium nitrate borate at a concentration of 40 g/m^2 (0.12 oz/ft^2) increased the freezing and salinity tolerance of both species as measured by leaf chlorophyll fluorescence, electrolyte leakage, and chlorophyll content. In addition, calcium fertilization at this concentration significantly increased total plant dry weight recorded at the cessation of the experiment. Application of both calcium fertilizers at concentrations of less than 40 g/m2 provided no significant protectant properties. Applications of more than 40 g/m2 proved phytotoxic to the two test species. Irrespective of concentration, applications of N:P:K (24:7:7) fertilizer did not enhance or increase susceptibility to freezing and salinity damage compared to nonfertilized controls. However, N:P:K (24:7:7) fertilization significantly increased leaf chlorophyll content and total plant dry weight. Results indicate that fall applications of calcium nitrate and calcium nitrate borate at 40 g/m^2 can increase the freezing and salinity tolerance of evergreen oak and holly.

Key Words. Evergreen Oak; Holly; Chlorophyll Fluorescence; Electrolyte Leakage; SPAD Values; Chlorophyll Content; Fertilizer.

Abstract. Accurate estimation of urban leaf area is important in understanding the urban forest's role in heat island mitigation, pollution removal, and carbon sequestration. Remotely sensed satellite data provide an alternative method to inexpensively and nondestructively estimate this important urban biophysical variable. Ceptometer measurements of leaf area index (LAI) at 143 urban sites in Terre Haute, Indiana, U.S., were modeled as a function of reflected radiance flux sensed by the Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER). Multiple regression models of LAI were compared to estimates produced by feed-forward back-propagation artificial neural networks. The most accurate estimation was produced by the neural network utilizing the ASTER green band and the ratio of the ASTER red and near-infrared bands. In this case, the simple correlation between the observed and predicted LAI values was moderately high ($R = 0.71$). The standard error of the LAI estimate was 1.35. In every case, the predictive accuracy of the neural network models exceeded the multiple regression models Examination of the parameters in the successful models indicates that the estimation of urban LAI in Terre Haute is physically predicated on the relative proportions of leaf chlorophyll, leaf spongy mesophyll, and indurate matter (e.g., concrete, asphalt, soil) constituting the individual picture elements of the satellitimage.

Key Words. Leaf Area; Remote Sensing; Ceptometer; Leaf Area Index.

Abstract. Integrated Vegetation Management, or IVM, is purportedly being used by many right-of-way management organizations across the United States. In many cases, IVM is just a name applied to old management approaches. Yet IVM is more than just a name. It is an in-depth and sophisticated system of information gathering, planning, implementing, reviewing, and improving vegetation management treatments. IVM is used to understand, justify, choose among, selectively apply, and monitor different types of treatments, with an overall goal of eliciting sitespecific, ecosystem-sensitive, economically sensible, and socially responsible treatment effects that lead to refined achievement of management objectives. We propose a six-step system to IVM that can act as a framework of activities to aid managers and other related stakeholders in communicating, organizing, and conducting IVM business. Each step produces information that must be integrated into the management system. Our six-step system is consistent with Integrated Pest Management and other IVM-like systems developed in forestry and agriculture. We present an IVM system with some unique perspectives and ideas from the literature, and incorporate information from and experience with the electric utility industry.

   Key Words. Right-of-Way; Vegetation Management; Management Systems; Powerline Corridors; Electric Transmission Lines; Pipelines; Highway; Railroad.

Absrtact: Integrated Pest Management (IPM) programs attempt to reduce insect associated losses to acceptable levels using multiple techniques that are effective, economically viable, and ecologically compatible. Sampling is the cornerstone of any IPM program, and significant effort has been devoted to the development, theory, and application of sampling methods. Relatively few IPM programs exist for managing forest and shade tree pests despite the availability of sampling procedures that are potentially useful for control decision-making. The majority of these sampling procedures are published on defoliating insects (58% of all publications). The most commonly referenced defoliators are the gypsy moth, *Lymantria dispar* (L.); Douglas-fir tussock moth, *Orgyia pseudotsugata* (McDunnough); spruce budworm, *Choristoneura fumiferana* (Clemens); and western spruce budworm, *C. occidentalis* Freeman. These four species alone account for 35% of all sampling publications relevant to IPM programs. The second largest group is bud, shoot, and root insects (16%) followed closely by wood- and bark-boring insects (11%). The piercing–sucking feeding group (10%) and seed and cone insects (5%) have relatively few sampling procedures available. Ninety-two percent of the species represented are predominately forest pests, with the order Lepidoptera and family Tortricidae most commonly reported. A significant opport nity exists for developing similar tools to aid in control decision-making for a large number of other pests. Current trends suggest that efforts should concentrate on species important to the urban forest and intensively managed forest plantations.

   Key Words. Sampling Techniques; Sampling Programs; Sequential Sampling; Action Thresholds; Forest Insects; Shade Tree insects; Urban Forestry.

Abstract. *Lagerstroemia* × 'Natchez' trees were topped, pollarded, or not pruned for 4 consecutive years. The first time trees were pruned in 1998, pollarding required more time than topping. However, the time required to top trees increased in each subsequent year; pollarding time remained the same for each year. Longitudinal sections through stems showed that barrier zones and decay extended farther behind heading cuts on topped trees 5 yearsafter the initial pruning than with the cuts on pollarded trees. Trees in the topping treatment formed a visible, dark-colored barrier zone along the cambium present at the time of wounding, averaging 74 cm (2.5 ft) in length, originating from the heading cuts made through 4- to 5-year-old wood. Barrier zone length on pollarded trees was only 1.8 cm (0.7 in) behind the original heading cuts through 2- to 3-year-old wood. Topping trees resulted in a sixfold increase in the volume of wood contained in dead stubs in the canopy compared to pollarding trees. Topping increased the need for cleaning the canopy of dead branches. A collar formed at the base of sprouts that were less than 0.64 the diameter of the largest sprout 5 years after the original heading cuts on trees in the topped treatment.
   Key Words. Pollarding; Topping; Barrier Zone; Decay; Restoration Pruning; Canopy Cleaning.