PROHORT

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PROHORT seminars for landscape professionals are conducted cooperatively by Urban Horticulture, **University of Washington;** Cooperative Extension Service, **Washington State University;** Edmonds Community College; South Seattle Community College.

PROHORT SEMINARS

Please pre-register.

LAWN RENOVATION

Monday, April 8
9 a.m. to Noon
Center for Urban Horticulture
Fee: $17

Renovation is an option for turf areas that are thin, diseased, old or suffering from winter kill. However, a recent survey reported that over 90% of all turfgrass renovations are not successful. Learn why, when and how to renovate.

Lawn Renovation

Dr. Gwen Stahnke, Extension Turfgrass Specialist, WSU-Puyallup, discusses renovation options and procedures including overseeding, aerification, topdressing, dethatching, and more.

Hydroseeding Procedures

Learn about procedures and costs for hydroseeding from Jim Lincoln, Pacific Agro Corporation. Hydroseeding equipment will be on display.

MAINTAINING COLOR

Wednesday, May 1
8:30 a.m. to 12:30 p.m.
Center for Urban Horticulture
Fee: $20

I. Maintenance Schedule for Annuals

Jerry Nissley, Bellevue Parks and Recreation, and Larry Eineg of Total Landscape Corporation discuss their scheduling approaches to maintaining annuals in the landscape. Learn when and what to do to keep your plantings healthy and attractive year-round.

II. Maintenance Schedule for Perennials

Sue Buckles, Horticulturist at Children's Hospital and Medical Center, outlines a year-round plan for maintaining perennials. Learn when and how to address planting, watering, fertilizing, mulching, pest monitoring, pruning needs and much more.

III. Maintaining Container Color

Virginia Powers of P & G Landscaping discusses maintenance needs and how-to's for landscape containerized color. Learn techniques and timing suited to the unique requirements of container growing.

RESTORING, ENHANCING AND CREATING WETLANDS

Tuesday, June 18
9 a.m. to 4 p.m.
Center for Urban Horticulture
Fee: $45, lunch included

PRE-REGISTRATION REQUIRED

DEFINING WETLANDS

Dr. Kern Ewing, Assistant Professor of Urban Ecology at the Center for Urban Horticulture discusses the genesis of wetlands, requirements for their survival, and the interface between wetland and upland vegetation.

GUIDELINES FOR WETLANDS PROTECTION

Learn about new guidelines for protection from Puget Sound Water Quality Authority Supervisor Steve Tilley.

WETLAND PLANTS

Nurseryman Dan McCain of Storm Lake Growers reviews wetland plant species and their cultural requirements. Live specimens will be displayed.

RESTORATION AND ENHANCEMENT PROJECTS

Clay Antieau of Ebasco Environmental shares a case study from a wetland mitigation project.
Marc Boulé of Shapiro and Associates reviews a variety of wetland mitigation projects—from design to installation.

MONITORING AND POST-CONSTRUCTION ISSUES

Kirk Hackler of David Evans and Associates reviews the post-construction monitoring procedures necessary in wetland mitigation projects.

Registration information
See page 3

OTHER EDUCATIONAL PROGRAMS

Pacific Northwest Chapter of the International Society of Arboriculture and CUH jointly present:

PLANTING TREES FOR SUCCESS

April 29, 9 a.m., $30
Center for Urban Horticulture

Ray Maleike, Extension Horticulturist, WSU-Puyallup and Brian Fisher, Arborist from White Rock, British Columbia, are featured speakers for this day-long program and demonstration covering soil and planting hole preparation, training and pruning, staking and guying, first year aftercare, and more. To register, make your check payable to PNW Chapter ISA and mail before April 22 to: P. O. Box 15729, Seattle, WA, 98115.

RHODODENDRONS

April 27, 1 to 3 p.m., $5
Graham Visitors Center, WPA

Following a short lecture on the origins and lineages of various rhododendrons, internationally recognized rhododendron breeder and grower Clint Smith will lead a field examination highlighting unusual and unique landscape-appropriate specimens in the Arboretum.

VIBURNUMS

Saturday, May 18, 9 to 11 a.m., $5
Graham Visitors Center, WPA

Walt Bubelis leads this lecture and field examination of viburnums, a diverse plant group with a wide range of adaptibility and forms. Newly available selections and landscape uses will be discussed as the Arboretum collection is studied.

Edmonds Community College Spring Courses: Insects, Annuals & Perennials, Spring Plant ID, Landscape Construction, Advanced Landscape Design, Advanced Propagation, Turf, Tools, Pruning. Call 771-1679 for details.

South Seattle Community College Spring Courses: Garden Center Management, Spring Plant ID, Soils, Insect ID & Control, Turfgrass, Small Business Management for Horticulture, Landscape Design, Landscape Construction. For information, call 764-5336.

PROHORT BOOKSHELF

By Valerie Easton

New Books at the Miller Library of interest to landscape professionals.

1989 Street Tree Survey of U.S. Cities and Towns. American Forestry Association in cooperation with the National Urban Forest Council, Michigan State University, et al., 1990.

American Association of Nurserymen. *Plant Patent Directory*. Washington, D.C.: American Association of Nurserymen, 1990.

Dietrich, Norman L. *Kerr's Cost Data for Landscape Construction 1990*, 10th ed. New York: Van Nostrand Reinhold, 1990.

Leslie, Anne R., Metcalf, Robert L. *Integrated Pest Management for Turfgrass and Ornamentals*. Washington, D.C.: U.S. Environmental Protection Agency, Office of Pesticide Programs, Field Operations Division, 1989.

Means Landscape Cost Data, 1991. Kingston, MA: R. S. Means Co., 1990.

Professional Grounds Management Society. *Grounds Maintenance Estimating Guidelines*. Cockeysville, MD: Professional Grounds Management Society, 1990.

Taylor, Ronald J. *Northwest Weeds*. Missoula, MT: Mountain Press Pub. Co., 1990.

PRO HORT Editorial Staff:
Dave Stockdale, Coordinator
George J. Pinyuh, County Extension Agent, Horticulture
John A. Wott, Associate Director, CUH

RESEARCH REPORT

Effect of Antitranspirant Sprays on Water Relations of Container-grown Woody and Herbaceous Plants

Dr. Rita Hummel
WSU-Puyallup Research and Extension Center

Water constitutes between 80 and 90 percent of herbaceous plants and over 50 percent of woody plants (Kramer, 1969). Maintaining an adequate water supply is essential for plant life, yet less than one per cent of the water absorbed by the plant is actually used for life sustaining processes. The other 99 per cent of the water is lost to the atmosphere as water vapor in a process known as transpiration. The majority of transpirational water loss is through the stomata in the leaves. In a single day, one corn plant may lose over 2 quarts of water (Greulach, 1973).

Antitranspirants, by slowing the loss of water vapor from the plant, have the potential to offer the plant some protection from drought stress. There are two ways antitranspirants can act to reduce water loss: 1) film-forming antitranspirants coat the leaf surface thereby preventing water loss; 2) metabolic antitranspirants induce closure of the stomata through biochemical pathways.

Although antitranspirants seem to have the potential to protect plants from water stress, research into the benefits of antitranspirants has produced mixed results. In August in central Florida the survival of live oak trees was not improved by film-forming antitranspirant sprays applied prior to transplant (Ingram and Burbage, 1986). However, in Alabama a 100 per cent survival rate one month after transplanting was recorded for three to four foot tall *Fraser photinia* plants sprayed with a film-forming antitranspirant before they were dug from the grower's field (Gilliam and Ponder, 1984).

Experiments where film-forming antitranspirants were used to control water loss from cuttings during propagation were successful when performed in Florida but failed in Oklahoma (Hall and Whitcomb, 1976). The researchers attributed this to difference in relative humidity between the two geographic locations. Under low relative humidity, the antitranspirants were observed to break and peel from the leaf surface after 2 or 3 days. Under high humidity conditions, the film remained on the leaf for several weeks.

In research at WSU-Puyallup, the effect of four commercially available film-forming antitranspirants (Vapor Gard, Envy, Wilt-Pruf, and Folicote, and a new metabolic antitranspirant, UC86177) on the water status of six container-grown woody and herbacious plant species was measured (Hummel, 1990). The woody plants—Chinese elm, Sargent's crabapple, and doublefile viburnum were grown in 1 gallon containers. The herbaceous plants—'Early Giant' tomato, 'Royal Pearls' petunia, and 'Blitz Orange' impatiens—were grown in 4-inch pots according to standard cultural practices. In August and September, antitranspirants were applied according to the manufacturer's recommended rates by spraying upper and lower leaf surfaces to run-off with a pressurized hand sprayer. Control plants were sprayed with deionized water.

Water status of the plants was assessed by the following methods: transpiration as water loss per unit leaf area, wilt by visual evaluation, and xylem pressure potential (XPP) which was determined with a pressure chamber.

The following is a condensed version of the research results. Treatment with antitranspirants produced no significant beneficial effect on the water status of doublefile viburnum plants in these experiments. The 12 possible outcomes for the results of wilt ratings, XPP, and transpiration measurements for the elm, crab apple, tomato, petunia, and impatiens plants can be summarized as follows: UC86177-treated plants were significantly less stressed than the controls 11 times and not significantly different from controls once; Wilt-Pruf lowered stress levels 10 times and was not different from controls twice; Folicote was beneficial nine times and not different three times; Vapor Gard produced eight beneficial and four similar results; and Envy treated plants were less stressed than the controls three times and no different nine times. Species differences in response to antitranspirants as well as differences in product efficacy were demonstrated in this research.

For additional details concerning this research the reader is referred to HortScience, Vol 25(7):772-775, July 1990, which can be obtained from the Miller Horticultural Library or by writing to Dr. Rita L. Hummel, WSU Puyallup, 7612 Pioneer Way East, Puyallup, WA 98371

Literature Cited:

Gilliam, C.H. and H.G. Ponder. *How to transplant Photinia successfully in summer*. American Nurseryman 160(7):55-58.

Greulach, V.A. *Plant function and structure*. Macmillan Co., New York.

Hall, G.C. and C.E. Whitcomb. *Antitranspirants: An investment or an unnecessary expense?* American Nurseryman 144(2):14-22.

Hummel, R.L. *Water relations of container-grown woody and herbaceous plants following antitranspirant sprays*. HortScience 25(7):772-775.

Ingram, D.I. and W. Burbage. *Transplanting trees in risky situations—do not antitranspirants and additives help?* American Nurseryman 164(3):81-82, 84-85.

Kramer, P.J. *Plant and soil water relationships: A modern synthesis*. McGraw-Hill, New York, 1969.

Trade names are mentioned with the understanding that no discrimination is intended or endorsement implied by the author or the university. The results reported were obtained under experimental conditions and should not be taken as a recommendation.

PLANT PROFILE

By Tim Hohn

Nothofagus antarctica 'Puget Pillar'

False beech, *Nothofagus*, was a name selected to antagonize botanists who were at odds over the relationship of these austral trees to the true beech (genus *Fagus*) of the Northern Hemisphere. Commonly referred to as "southern beeches," but differing from true beech in floral parts, they are not found north of the equator. Ranging along the southern boundary of the infamous Pacific "Rim of Fire," the genus *Nothofagus* has its largest concentrations in Papua New Guinea

(around 16 species) and temperate South America (about 9 species). Native species of southern beech are also found in New Caledonia, Australia, Tasmania, New Zealand, and there are fossil remains in Antarctica.

Storming the volcanic peaks of southern Chile or kayaking stream courses in the arid Patagonian landscapes of Argentina, one is certain to find pockets and forests of *Nothofagus antarctica*. Commonly referred to by Patagonians as the "beggar" among species of southern beech, *N. antarctica* dwells in those locations rejected by its brethren. Cowering in cold hollows and tenaciously clinging to windswept coastal moors and precipitous mountain peaks, *N. antarctica* is a hardy little "beggar." It is a medium-sized deciduous tree with alternating, closely set, broadly ovate leaves up to one inch long that are curiously waved and ruffled. The branchlets are set in one plane giving each tree a layered and distinctive habit, one of particular elegance when they are young. The fall color is a rich russet and some flowering plants have a pleasing fragrance.

Nothofagus antarctica grows fast in the Pacific Northwest and can, unfortunately, develop a thin and open habit as an older tree. At the Washington Park Arboretum we have selected a clone of this southern beech that is broadly fastigiate or cone-shaped with dense, upward growing branches. The distinctive planar and layered branching is still evident within a more tightly whorled crown forming a narrower and fuller head.

This new clonal section, named Puget Pillar, retains many of the same distinctions of branching and all the beauty of the foliage typical of *Nothofagus antarctica*. However, its denser crown and upright form make it an even more desirable medium-sized tree for urban landscapes. Mature trees can be expected to reach a height of 40 to 50 feet in 20 years with a crown spread of 18 to 20 feet. At maturity, *N. Antarctica* 'Puget Pillar' will be reminiscent of mature *Carpinus betulus* 'Fastigiata' in crown shape but with finer texture and attractively furrowed bark. Our mature tree of Puget Pillar has never suffered serious crotch or crown failures, even during the heavy, wet snowfalls that occasionally plague our area. Though the crown is dense and stable, the small and interesting leaves of this southern beech selection keep its appearance from becoming too heavy and imposing.

Nothofagus antarctica 'Puget Pillar' is best adapted to the western U.S. in those areas of USDA hardiness zone 7 or above (Sunset zone 4,. It is thought that they do not perform well on calcareous soils. Except in areas of extreme drought, established and mature trees will not require significant irrigation. Open, sunny areas are best, although part shade, as that from buildings, is suitable. We have not observed any serious pest problems on *N. antarctica* 'Puget Pillar,' although we have noted the presence of small populations of plant hoppers.

This tree is relatively easy to propagate from softwood cuttings treated with a hormone, such as Woods 1:7, and placed under conditions of high humidity. Nurserymen interested in propagation material should contact: Ms. Barbara Selemon, Propagator, Center for Urban Horticulture GF-15, Univ. of Wash., Seattle, 98195.

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