PRO HORT

Center for Urban Horticulture
University of Washington

Cooperative Extension
Washington State University

Vol. 4, No. 2 Spring 1986

LANDSCAPE MAINTENANCE SEMINARS

. . . for the landscape professional

Cooperating: Center for Urban Horticulture, University of Washington; Cooperative Extension Service, Washington State University; Edmonds Community College; South Seattle Community College.

ntrolling Insect Pests with I.P.M.

Date : Friday, April 25, 9:00 a.m. to noon
Location : Center for Urban Horticulture
Instructor : Dr. C. S. Koehler

Environmental regulations, health concerns, and public reaction have forced many landscape managers to reduce pesticide usage. One way to do this is through integrated pest management. Discover how to apply I.P.M. strategies to control insect pests in the landscape.

Dr. Koehler is an entomologist and urban pest management specialist with the University of California Cooperative Extension. He is experienced in the landscape applications of integrated pest management.

Landscape Irrigation Systems

Date : Wednesday, May 21, 9:00 a.m. to noon
Location : Center for Urban Horticulture
Instructor : Marvin Pascual

s seminar will concentrate on nonturf irrigation systems. After a basic introduction to the workings of an irrigation system, you will learn about the different types of systems available, how to select the proper heads and other equipment for your situation, and how to troubleshoot irrigation problems. The advantages and disadvantages of drip irrigation also will be covered.

Mr. Pascual is employed by Western Equipment Distributors, Inc., and is a part-time irrigation instructor at South Seattle and Edmonds Community Colleges.

Roses: Selection and Maintenance

Date : Wednesday, June 18, 9:00 a.m. to noon
Location : Center for Urban Horticulture
Instructor : Karen Furst

How do you restore old, overgrown roses? Are "old roses" better than new hybrids? Which varieties make tough, low-maintenance landscape plants? What are the major insect, disease, and cultural problems of roses and how are they controlled? This seminar will answer these questions and more.

Ms. Furst is a Washington certified nurseryman, owner of West Coast Nursery Inventory, and a part-time horticulture instructor at Edmonds Community College.

INTERIOR LANDSCAPE SEMINAR

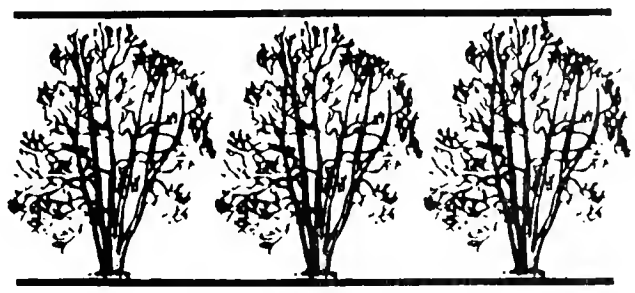
. . . for those who professionally maintain interior plants.

Insect Pest Control for Interior Landscapes

Date : Thursday, April 24, 7:30–9:00 p.m.
Location : Center for Urban Horticulture
Instructor : Dr. C. S. Koehler

Learn the best strategies—chemical and cultural—for controlling insect pests in an interior landscape. The special legal and environmental problems associated with interior landscape pest control also will be discussed.

Dr. Koehler is an urban pest management specialist with the University of California. He is familiar with the pest problems of the interiorscape industry and is co-author of *Insect and Mite Control Guide for California Commercial Floricultural Crops*.



Mailing List Update

If you would like to continue receiving *Pro Hort,* check the date on your address label. All names on our mailing list remain active for one year. Each time you pay registration for a seminar, your label is updated.

If your label is dated prior to June 1, 1985, and you would like to remain on the mailing list, please complete the form below or call 545–8033.

PLEASE KEEP MY NAME ON THE *PRO HORT* MAILING LIST:

Name_____

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MAIL TO: Continuing Education, Center for Urban Horticulture, GF–15, University of Washington, Seattle, WA 98195

Save this information for details on date, time, and location. Receipts will *not* be returned by mail; they will be available at the door.

Registration Form

Landscape Maintenance Seminars

_____ Complete Series: I.P.M., Irrigation, and Rose Seminars $30.00

Individual Seminars

_____ Controlling Insects With I.P.M. $12.50
_____ Landscape Irrigation Systems. $12.50
_____ Roses: Selection and Maintenance $12.50

Interior Landscape Seminar

_____ Pest Control for Interior Landscapes ..... $ 7.50

TOTAL: $_____

Group Rates: Special group rates are available to firms/institutions that send two or more employees to a seminar. The rates are:

Landscape Maintenance Seminars
2–5 employees $10.00/person
6 or more employees ..... $ 9.00/person

Interior Landscape Seminar
2–5 employees ..... $ 6.25/person
6 or more employees ..... $ 5.00/person

To qualify for group rates: (1) your firm's registration must be received at least one week in advance; (2) all registrants listed must be from the same firm; and (3) a firm's total registration fee must be paid with *one* check or purchase order.

Firms using purchase orders please call Jan Davis at 545–8033 for registration arrangements.

Make checks payable to the University of Washington; bank cards are not accepted.

NAME_____

ADDRESS_____

CITY_____STATE_____ZIP CODE_____

DAYTIME PHONE_____

Mail payment and registration to: Urban Horticulture Program
University of Washington, GF–15
Seattle, WA 98195

For more information please call 545–8033.

OTHER EDUCATIONAL OPPORTUNITIES

Edmonds Community College Horticulture Courses–Spring 1986

Evening and Weekend Courses: Turf; Annuals and Perennials; Sprinkler Repair and Installation; Native Plants in the Landscape; Spring Plant I.D.; Landscape Construction Design.

Daytime Courses: Plant Diseases; Rhododendron and Azalea I.D.; Landscape Maintenance Design; Greenhouse and Nursery Studies; Landscape Studies; Container Gardening; Landscape Construction; Horticultural Design; Spring Plant I.D. Call 771–1545.

South Seattle Community College Horticulture Courses–Spring 1986

Garden Center Management; Spring Plant I.D.; Landscape Maintenance; Landscape Design; Weed Identification and Control; Turfgrass Culture; Landscape Contracts and Specifications; Small Business Management for Horticulture. Call 764–5336.

Lake Washington Vocational Technical Institute

Offers training in nursery and greenhouse operations through its environmental horticulture program. For information call Don Marshall at 828–5621 or 828–3311.

ARTICLES

Urban Horticulture Research Notes

Dr. Barbara Smit-Spinks
Center for Urban Horticulture
University of Washington

Plants in many sites are stressed by insufficient aeration of the root zone. Generally, there is adequate aeration when 10%–60% of the soil volume is made up of gas-filled pore space. Under these conditions, there is continued gas exchange between the soil atmosphere and the above-ground atmosphere. This process replenishes oxygen used by plant roots and microorganisms as well as reduces the concentration of carbon dioxide around the roots.

This necessary gas exchange process is reduced or halted by several situations: (1) Waterlogging or flooding—the soil pore spaces are filled with water so gas exchange is sharply reduced. Both oxygen and carbon dioxide diffuse through liquids 10,000 times more slowly than through air. (2) Compaction of surface layers, asphalt, concrete—each of these provides a physical barrier to gas exchange between the atmosphere and the soil. (3) Heavy, finely textured soils—these soils have smaller pores and generally a smaller percentage of pore space per volume than do more coarsely textured soils. Smaller pores remain water-filled more easily than larger pores and so gas exchange is limited more often by water saturation. A smaller total volume of gas space also limits the pathway for gas movement, thereby restricting exchange with the atmosphere.

Since all of these situations occur in urban landscape settings, we are researching the effects of restricted gas exchange on roots. We hope to identify critical levels of oxygen and carbon dioxide, describe plant stress responses, and understand survival mechanisms by using *Populus* species as a model tree system. Information gained and tech-

ques generated during our studies with *Populus* will then be available for further studies with other tree species.

Until scientists learn enough about these kinds of stresses and plant responses to manipulate plants, the best tactic for landscapers to use in dealing with poor aeration problems is to select trees that grow in bottomlands or floodplains. These trees are often moderately to very tolerant to flooded conditions and therefore are likely to withstand restricted gas exchange irrespective of the cause. The following list contains a sampling of species which have been reported to be relatively tolerant of flooding:

Salix spp., *Acer saccharinum, Cephalanthus occidentalis, Acer negundo, Populus deltoides, Fraxinus pennsylvanica, Platanus occidentalis, Quercus macrocarpa, Gleditsia triacanthos, Diospyros virginiana, Taxodium distichum, Sequoia sempervirens, Pinus echinata, Pinus taeda, Pinus rigida.*

References: T. T. Kozlowski, ed., *Flooding and Plant Growth*. Orlando, Florida: Academic Press, Inc., 1984. (Available at the Miller Library, Center for Urban Horticulture).

Urban Trees—Fact and Fantasy

Dr. James R. Clark
Center for Urban Horticulture
University of Washington

Will big, beautiful, stately trees grow in cities? Everyone—from urban planners to landscape architects to horticulturists—hopes so. Our mental images of a "livable" urban space is one filled with trees and other woody plants. We'd like to believe that such an image can become reality.

The reality is often at odds with our image—a walk up Seattle's 4th Avenue or Seneca Street can convince one of that. Sweet gums *(Liquidambar styraciflua)* line these streets through most of the Central Business District. The variation in appearance is wide ranging. Some trees—in Freeway Park or in front of the Rainier Club—look superb, while others are doing poorly. Although it is clear that beautiful trees can be grown in the heart of the city, attempts to do so often fail. Examples of such successes and failures can be just a few feet from one another.

uch contrasts exist throughout urban environments. Conifers usually are not regarded as good city trees—yet the giant redwood *(Sequoiadendron giganteum)* in downtown Seattle is doing very well. Tree roots tear up sidewalks in one block but not another. These aren't random events, they occur for a reason. Trees will survive—and thrive—when given adequate amounts of light, moisture, fertility, soil quality, and air quality. Where one or more of these elements is lacking, growth will be severely limited. And this must be the case in the Central Business District, and in urban areas generally. Variation in the availability or supply of these essentials abounds.

This column will be devoted to trees in diverse settings, including urban areas and development sites. In issues to follow we will look more closely at the sweet gums in Seattle, e.g., what is so variable? We also will talk about madronas *(Arbutus menziesii)* and big-leaf maples *(Acer macrophyllum)* at development and construction sites. We will try to understand how trees respond to disturbances—and how we can measure a positive response.

Fruit Tree Disease Control

George Pinyuh
Cooperative Extension
Washington State University

Dormant sprays applied to apples and crabapples are of little or no value in controlling scab. The organism that causes this disease does not overwinter on the bark or twigs, so sprays applied to bare branches and twigs will not prevent it.

Fungicides should be applied at the pink stage, at petal fall and two weeks later. These three applications should give quite good control. Since the organism does overwinter on fallen leaves, a thorough cleanup of the previous season's foliage should eliminate a major source of inoculum.

Brown rot, the disease that causes blossom blight and twig dieback on ornamental cherries as well as most other *Prunus* species, is also not reduced by dormant sprays on the trees. As with scab on apples, good control can be achieved with three critically timed sprays during and right after the flowering cycle. The first spray goes on at the pink stage, as with apples, but the second one must be applied at full bloom. The full bloom period is probably the time of most serious infection and protection must be applied then. A final application should be made when all the petals have fallen.

To reduce the source of brown rot inoculum, all fallen leaves and mummified fruit, both on the ground and up in the tree, should be removed. All dead spurs and twigs should be pruned away also.

Benomyl and Captan, two fungicides recommended for control of scab and brownrot, will not harm bees foraging in trees during the flowering period. Don't, however, use any insecticide at this time.

Peach trees that were not protected with several dormant sprays during bud swell in January and February cannot be helped after this period. They already have been infected and as the leaves begin to come out they will show evidence of curl.

To help prevent reinfection through the spring and summer, it may be helpful to get rid of infected leaves in the vicinity of the tree. In addition, an application of nitrogen may help infected trees overcome the annual trauma associated with this organism. 'Frost,' a new curl-resistant peach developed by WSU's research facility in Mt. Vernon, should be recommended to clients interested in peaches here in western Washington.

Cost and Effect of Backfill Amendments on Transplant Growth and Survival

Dr. Rita L. Hummel
Western Washington Research and Extension Center
Washington State University

Recent research studies have shown no consistent improvement in growth and establishment of woody plants from incorporation of soil amendments into the backfill at planting. In all but the worst soil conditions, soil dug from the planting hole is satisfactory for backfilling around roots of trees and shrubs. Researchers in Oklahoma recommend using no soil amendments when planting. Despite the accumulating evidence, most landscape installation specifications still routinely require backfill amendment. A common specification is 1 part by volume peat moss and 2 parts by volume topsoil. In addition, manufacturers of "superabsorbent" gels are encouraging use of their products as backfill amendments claiming that improved soil water holding capacity will reduce drought stress, thus increasing survival of newly transplanted trees and shrubs.

The following experiment was undertaken to determine the effectiveness of backfill amendments in improving growth and establishment of sweet gum trees and to estimate the relative costs of using these materials in landscape installation.

Sweet gum (*Liquidambar stryaciflua* L.) trees averaging 3¼ ft. tall and ½ inch in diameter 6 inches above ground were transplanted from 1 gallon containers into the field in February. Field soil was a fine sand. Amendments were added to the backfill soil as follows: (1) on a volume basis, 1 part peat moss to 2 parts soil; (2) on a volume basis, 1 part fired montmorillonite clay to 2 parts soil; (3) following manufacturer's recommendations, 0.67 oz. of the "superabsorbent" gel Terrasorb, a "gelatinized starch-hydrolyzed polyacrylonitrile graft co-polymer"; and (4) control, no amendment added. Newly planted trees were thoroughly watered and a 2 ft diameter earth rim for a watering basin was constructed around each tree. Trees were to receive only natural rainfall, however prolonged summer dry periods necessitated hand watering 4 times. After 6 months, growth and establishment of the trees was measured.

Results showed that backfill amendment did not have a significant influence on height and caliper growth, total top dry weight, or the visual rating of sweet gum trees in the experiment. Dry weights of new roots produced after transplanting and root extension into the backfill soil were not significantly altered by the addition of backfill amendments at planting time.

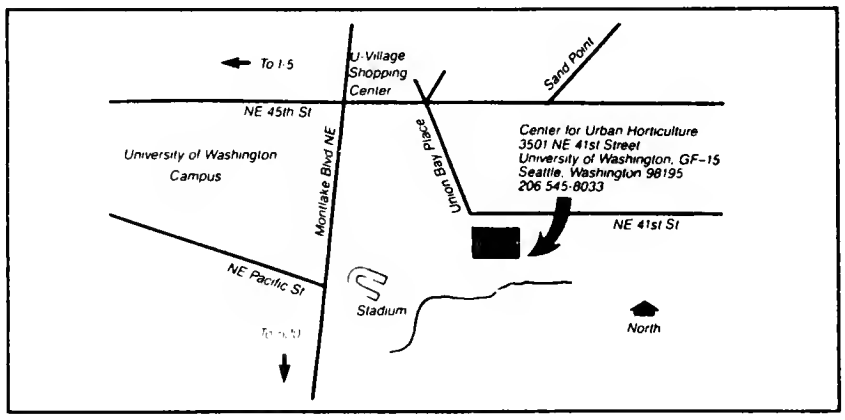
A cost estimation for materials and a single laborer indicated the addition of backfill amendments increased the per-tree installation cost by 27% to 30% or $0.43 to $0.48. The increased installation cost was not offset by an increase in growth and establishment of the sweet gum trees in this experiment.

For additional information refer to Amended Backfills: Their Cost and Effect on Transplant Growth and Survival, by R. L. Hummel and C. R. Johnson, Journal of Environmental Horticulture 3(2): 76–79, June 1985. This journal is available in the Miller Library, Center for Urban Horticulture. For a copy of this article write to Dr. R. L. Hummel, WWREC, WSU, Puyallup, WA 98371.

Send Us Your Problems!

That is, your horticultural problems. Starting with the next issue of *Pro Hort*, we will select questions from our readers and print the answers in a column to be called the "Pro Hort Forum." The questions can deal with anything that concerns the landscape professional—soil amendments, fertilizers, transplanting, pesticides, etc. Please do *not* send us sick plants for diagnosis, though.

Send your questions to: Center for Urban Horticulture, GF–15, University of Washington, Seattle, WA 98195, Attn: Van Bobbitt.



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