LANDSCAPE MAINTENANCE SEMINARS . . . for the landscape professional

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

Herbicide Update

Date : Wednesday, April 26
Time : 9:00 a.m.-12:00 noon
Location : Center for Urban Horticulture
Instructor : Dr. Stott Howard

Herbicides can be useful tools for the landscape manager, but only if carefully chosen and properly applied. This seminar will review herbicides, both restricted-use and general-use, that are currently available to the landscape industry. Specific uses, potential hazards, and environmental concerns will be addressed.

Dr. Howard is a weed scientist at Washington State University's Northwestern Washington Research and Extension Center in Mount Vernon.

This seminar qualifies for three hours of WSDA pesticide license recertification credit.

Pesticide Toxicology: Fact and Fiction

Date : Monday, May 8
Time : 9:00 a.m.-12:00 noon
Location : Center for Urban Horticulture
Instructor : Dr. Frank Dost

Accurate, unbiased information on pesticides seems hard to come by. In an attempt to separate fact from fiction, this program will cover the following topics: basic principles of toxicology; the nature of major diseases linked to pesticides; public perception of pesticides versus actual risks; toxicities and hazards of specific pesticides used by the landscape industry.

Dr. Dost is a professor in the Department of Agricultural Chemistry at Oregon State University. He also serves as extension toxicologist.

This seminar qualifies for three hours of WSDA pesticide license recertification credit.

Turf Diseases: Causes, Diagnosis, and Treatment

Date : Wednesday, June 28
Time : 9:00 a.m.-12:00 noon
Location : Center for Urban Horticulture
Instructor : James Chapman

To successfully control turf diseases you must understand them. What stimulates the development of specific diseases? During what seasons are they most prevalent? Are controls actually required? Mr. Chapman will present integrated control strategies which emphasize cultural as well as chemical treatments.

Mr. Chapman is manager of the commercial turf department at the Chas. H. Lilly Company. He previously owned a commercial lawn service, operated a company that built and renovated athletic fields, and spent 21 years as a technical representative with Scott's Pro Turf division.

This seminar qualifies for three hours of WSDA pesticide license recertification credit.

Registration information is on page three. Please note changes in registration fees.

OTHER EDUCATIONAL RESOURCES

Dr. Alex Shigo. September 1-7.

After three days of sold out workshops in May 1988, Dr. Shigo has agreed to return to Seattle for a one-day introductory tree care workshop on September 1 and his intensive, 3½ day tree biology workshop from September 4 through 7. There is a $75 registration fee for the introductory workshop and enrollment is limited to 40. This program is a prerequisite for the intensive tree biology workshop which is limited to 20 students and requires a $550 registration fee. For details, call Van Bobbitt, 545-8033.

Lake Washington Vocational Technical Institute is offering a short course on large tree pruning for professionals. Climbing techniques will be demonstrated, and compartmentalization and natural target pruning will be explained. Saturdays, April 15, 22, and 29; 8:00 a.m.-12:00 noon. 828-5612.

Parking

Free parking will be available for those attending Pro Hort seminars. Please park in parking lot if space is available.
When it comes to flower size it seems that bigger (and more symmetrical) is better—just ask dahila, chrysanthemum, camellia, rose, and other plant breeders. Though I don't subscribe to this philosophy, I have an arboraceous candidate that should prove adequately impressive to the "bigger is better" crowd of flower fanciers. The Pacific Northwest is a very good area for growing magnolias, and it is common to see *Magnolia x soulangiana* and its many cultivars in our landscape. As beautiful as these and other common magnolias are, the Chinese species *Magnolia sargentiana* var. robusta, along with *Magnolia campbellii*, is the peacock of the genus. Since it was first discovered by E.H. Wilson, in 1908, there has been controversy over the correct identification of *Magnolia sargentiana* var. robusta. It was first seen by Wilson in the Wa-shan district of western Chinese, China, along with the type of *M. sargentiana*. From a letter sent to J.G. Millais, Wilson notes, "this magnolia is not uncommon in thickets and moist woods on and to the west of Wa-shan between elevations of 5,000 and 6,000 feet, where it was discovered by me in the autumn of 1908 and introduced into cultivation by seeds sent to the Arnold Arboretum that year." Interestingly, you can see from Wilson's description that he did not see the tree in flower and, in fact, described and named it with Alfred Rehder from dried foliar and fruiting specimens in 1913. The identification problems mentioned above stem from the fact that *M. dausoniana* and *M. sargentiana* inhabit the same area of China and the three can be difficult to distinguish.

*Magnolia sargentiana* var. robusta is indeed a robust magnolia with a wide spreading crown, tempting some botanists and plantmen to describe it as large and shrubby. Trees may become 40 feet tall with an equal spread and have a tendency to retain branches nearly to the ground. It is a coarsely foliaged tree with deciduous, oblong-lanceolate leaves to 8 inches long and 3 inches wide, often with a notch at the tip. The bark is smooth, yellowish-gray while the young shoots are smooth and gray, very much like a beech. *Magnolia sargentiana* var. robusta is a precocious and profuse flowering tree and is a stunning sight in full bloom. The flowers begin to open in March from rather long, sickle-shaped, hairy buds with the tepals fanning out as a funnel. This is an unusual sequence for a magnolia in that most of them bulge the outer tepals first, leaving the inner tepals in an erect position. Opening well in advance of the leaves, the flowers are nodding—one unusual feature—and huge, as much as 12 inches across. Yes, there are other magnolias with flowers this large but it is their abundance before the leaves and their nodding position, in addition to their size, that makes these so remarkable. The 12 to 16 broad, overlapping tepals are white, flushed mauve pink, or even lilac, on the outside and toward the base. Trees in full bloom look like densely branched stanchions supporting brightly colored prayer flags. The flowers have a uniquely floppy aspect, each tepal slightly askew like the ears on a spaniel. Standing under the tree looking up, the flowers are like empty parachutes just beginning to catch the wind. From G.H. Johnston's *Asiatic Magnolias in Cultivation*, "This magnolia is certainly one of the most spectacular of all those introduced into our gardens, and in the running, maybe, for inclusion in a list of the dozen most beautiful plants to be seen in the gardens of the British Isles."

The flowers emit a spicy fragrance which is said to be particularly heavy at night. Though the flowers are large, open early, and are somewhat fragile looking, they seem to be rather wind tolerant. This might be attributed to the abundance of flowers and the leathery nature of the tepals. The one small fly in what otherwise is an idyllic horticultural ointment is that the trees usually do not flower until they are 10 to 15 years old. I hope that, after you have reviewed its characteristics and actually seen a tree in flower, you will deem it worth the additional waiting time.
rules for the proper application of names) has prohibited the naming of new cultivars with Latin-sounding names; but older cultivar names, such as ‘Atropurpureum’ and ‘Wiltonii’, are allowed to stand.

Let me stress again: in a name with three words, the third one must be labelled! Why all the fuss?, you ask. The answer involves the definitions of species and the categories within. A species is a set of organisms that are unambiguously recognized and differentiated from organisms in other species. Furthermore, a species cannot be subdivided with no overlapping between the subdivisions. Most species have appearances and structures that are so consistent that scientists who work with plant naming (called “taxonomists”) do not divide them further. In some species, however, such as Acer negundo, there is enough variability (say, in leaf shape, size, or flower structure) with a geographic basis to merit subdividing the species. If a variant accounts for a very large part of the geographic range of the species, we divide it into subspecies; hence, Acer negundo ssp. californicum. If a variant occurs rarely in populations throughout the geographic range of a species, we recognize it as a form, e.g., the thornless form of honeylocust, Gleditsia triacanthos f. merrisi, which is rare in nature but commonly cultivated.

The above categories are determined by morphology and geography of the plants in nature. Cultivar, however, is an artificial category that refers to a set of plants with a particular outstanding feature (flower size, color, bark, soil tolerance, etc.) that can be maintained by propagation. Often cultivars are propagated clonally in order to replicate the genetic structure exactly, but many others are reproduced sexually; therefore, a cultivar is not necessarily a clone, and the words should not be used interchangeably.

Incidentally, you can see now how names can change occasionally. For instance, early taxonomists recognized Acer californicum as a species. Later study showed that this group is not sufficiently distinct from Acer negundo to warrant recognition as a full species, but that recognition of it at the subspecies level is more appropriate, hence, Acer negundo ssp. californicum. When a taxonomist decides to combine two species, he must choose the older of the two names as the correct one. Another common change occurs when a species is shifted from one genus to another to correctly recognize their “genealogic” relationships, for instance, Castanopsis chrysophylla became Chrysolepis chrysophylla. The field of plant taxonomy has progressed, both conceptually and technologically (we now use computers and sophisticated chemical analysis, as well as electron microscopes) as much as any scientific field. Therefore, many of our standard books for plant naming, such as L.H. Bailey’s Manual of Cultivated Plants (1949), are as outdated as a physics textbook from the same year. Fortunately, most plant names are standing the test of further study, which is a testimony to the judgment of our predecessors in plant taxonomy.

Aside from the names themselves, occasionally one encounters other diacritical marks. The most common one, a large “X,” indicates that the group is of hybrid origin. That “X” is placed before the hybrid epithet, for instance: Taxus X media (a cross between T. baccata and T. cuspidata) and X Fatsheadera lizei (an inter-genus cross between Fatsia japonica and Hedera helix).

All this is only the tip of the taxonomic iceberg, but I hope I have answered many of the questions that occur to nurserymen, landscapers, gardeners, and others who daily communicate about plants. Two reference books (both available in the Miller Library, Center for Urban Horticulture, University of Washington) that I find extremely handy are An Annotated Checklist of Woody Ornamental Plants (1974, from the University of California) and Hortus Third (a huge compendium from Macmillan Press). The take-home message is that there is a rational system for naming plants, based on their natural biology, and that with practice anyone can easily use it to communicate clearly and precisely.


Vitamin B₁

George Pinyuh
Cooperative Extension
Washington State University

Vitamin B₁, thiamine hydrochloride, has been packaged and sold to gardeners for an awful long time. It is supposed to stimulate root development, thus helping to reduce transplant shock in vegetables, perennials, annuals, shrubs, trees, and in short, all plants. Presumably the reduction in transplant shock and the stimulation of new root growth will ensure better success in planting and transplanting.

This is another one of those things in horticulture that has been around so long that many gardeners believe in it about as strongly as the religion they profess. Unfortunately, however, like a lot of the other garden practices that have been passed down through the years, when it comes under scientific scrutiny the results are often less than satisfying.
The Journal of the American Society for Horticultural Science has published the results of numerous investigations into the efficacy of our old and true friend, vitamin B. Shrub cuttings treated with the stuff have not rooted significantly better than untreated cuttings. Transplanted citrus trees in California, treated with vitamin B, did not grow significantly better than those not treated. Roses treated with thiamine didn’t produce larger flowers or longer stems, nor did chrysanthemums treated with it do any better than ones not given a dose.

In 1982, scientists with the University of California treated snapdragons with a vitamin B root stimulator which also contained NAA, a synthetic plant hormone and a 3-10-3 fertilizer. Now this did make the plants grow larger than untreated ones, but not any larger or better than snapdragons treated with fertilizer alone. Obviously, it was the fertilizer in the root stimulator that caused better growth, not the vitamin material.

Researchers at the University of California carried out further experiments in 1983 and 1984 with one of the commercial preparations which contained the magic vitamin. This time they used vegetables.

In one test they grew tomato, green pepper, squash, and watermelon seedlings in pots for almost three weeks. They then uprooted the seedlings, removed a quarter of each one’s root system, and replanted them in their original pots.

After they were replanted, half of the test pots had their soil soaked with a solution containing vitamin B1 in water. The other half of the test pots were not given the thiamine.

After 11 days the previously treated plants were given another B1 solution and, as before, the previously untreated ones got nothing but plain water. As with all good scientific investigations, the treatments were randomized and replicated four times.

A similar test was also done on Romano bush beans, sweet corn, zucchini, and another watermelon cultivar. In this test, the vitamin solution was provided only one time. In both sets of tests the plants were visually evaluated after growing for a suitable period. Vigor, height, color, and root development were all looked at.

One more test involving Kentucky Wonder pole beans and Golden Bantam sweet corn cultivars was done by the same scientists. This time they used not only the vitamin B1 solution but a “B Plus” solution consisting of thiamine (the vitamin) plus iron, manganese, and zinc, all of which are plant micronutrients.

During the tests, all of the transplants, treated or untreated, successfully reestablished themselves after they lost some of their roots and were replanted. There also was absolutely no significant difference in health, color, or vigor among the treated and untreated vegetable plants. In fact, in a number of cases the untreated plants grew just a little bit, though not significantly, taller than the ones dosed with vitamins.

Neither the vitamin B1 nor vitamin “B Plus” made any significant difference in any of the criteria used for evaluation. The researchers further concluded that preparations of vitamin B1 that do improve plant development are the ones that include nitrogen, phosphorous, and potassium, and that the improvement is due to the nutrients, not the vitamin.