

**U OF D NEWS**  
**Susan Barton**  
**Extension Specialist**

Ornamentals Short Courses will begin again in August with Herbaceous Landscape Plants (August 16, 18, 23, 25), the Poinsettia School (August 16, 17) and Lawn Establishment and Maintenance (August 24, 29, 31). Drafting Techniques for the Landscape Designer is back by popular demand and scheduled for October 12, 19, 26 and November 2, 9, 16. You will receive a flyer this summer. Be sure to register early so we can plan accordingly. Don't miss this opportunity to expand your horticultural knowledge with topics that pertain directly to the work you do each day. In 1995, the series will also include a business management course. You can look forward to this opportunity to learn how to make more money with the horticultural knowledge you have!

The annual Delaware/Pennsylvania Garden Center Bus Tour is scheduled for Wednesday, July 13, 1994. We will be touring four garden centers in Northern New Jersey. Russ Powell and I have to choose from about 8 suggestions we received from New Jersey County Agents. One possibility is to include a highly-acclaimed farm market for those of you who want to diversify to expand summer sales. The final itinerary and flyer will be sent out in June.

The UDBG (University of Delaware Botanic Garden) and the D.A.N. will once again sponsor a research and plant material evening for the nursery/landscape industry. Last year we called this a garden party but we want to change the name to reflect the importance of the material covered. So the new name is ? (any suggestions?). Anyway, the event will be held on Tuesday, September 13, 1994 at the UDBG in Newark. We will have a tour and update of current ornamentals research, a tour of the UDBG (including a fabulous herbaceous garden

and new wildflower plots), dinner and a plant give-away. Last year the evening was both fun and informative. This year promises to be the same.

Speaking of the UDBG. The spring plant sale was a huge success. We published catalogues and featured hard-to-find oaks, hickories and ferns. We sold a range of plants from those completely unavailable in the nursery trade to those that are available but need promotion to the consumer. We hope this sale helps spread the word about plants like *Clethra*, *Scabiosa*, *Deutzia* 'Nikko' and others so consumers come and ask for these great plants. Thanks to Diane Hill at Gateway, we provided a list of retail nurseries in the D.A.N. for consumers to visit to fulfill the rest of their plant needs. Many people asked for plants we were not selling or plants we no longer had and we steered them in your direction. As we educate the consumer with sales like this, business should increase for everyone. The UDBG Friends and Plant Sale Committee would like to send its thanks to the D.A.N. for its support.

This summer, Jo Mercer and I are conducting a wildflower sod focus group study. We will make a presentation including a slide show introduction, video of installation and tour of wildflower sod plots to three different focus groups. The focus group will be led through a series of questions and discussions by a focus group facilitator. We hope the results will tell us something about the acceptability of wildflowers in the landscape and about using wildflower sod as an installation method. The information collected should help growers, landscapers and retailers market this new and exciting product. We also hope to evaluate this technique as a method for discovering how to introduce new horticultural crops or concepts to the consumer. The first group will be comprised of homeowners and is scheduled for June 29, from 6:00 to 9:00 PM. We would also like to

conduct two focus groups from within the industry. A landscape contractors' focus group meeting is scheduled for July 27 from 6:00 to 9:00 PM at Townsend Hall in Newark. A landscape maintenance professionals' focus group is scheduled for August 3 from 6:00 to 9:00 PM again at Townsend Hall in Newark. If you are interested in participating in one of these groups, please complete the form in the back of this newsletter. Dinner will be provided and the evening will give you a chance to learn about wildflowers and wildflower sod as well as express your opinions.

This year the UDBG is an official participant in the SE PA IPM Research Group. We are sending in weekly growing degree day, insect monitoring and plant phenology information. Winterthur and Mt. Cuba Center (through Davey Tree) are the other new Delaware participants. This group has collected three years of valuable data linking insect activity to growing degree days and plant phenology. I am using this data to time information in *Ornamentals Hotline* and we hope to make predictive models for horticultural pests that apply directly to the Delaware Valley. Let me what you think of the GDD Alerts in *Ornamentals Hotline*. Dewey Caron organized an excellent training session on beneficial insects for this group in April. We have two more training sessions scheduled for the summer at Longwood Gardens and Winterthur. If you would like to participate in this research project next year, let me know.

I am also interested in conducting a regional IPM Scout training workshop in 1995. It might be held for one week in the summer and designed to train IPM scouts to identify insect pests, disease symptoms, beneficial insects and other plant problems. The impediment to launching full-scale landscape and nursery IPM programs is the lack of trained scouts. We'd like to rectify that problem but we need the full

support of the industry with a commitment to send people to this workshop. Let me know if you like this idea and what format would work best for you and your employees. Call me at 831-2531.

## MARKETING NATIVE PLANTS

Susan Barton

Extension Specialist

*The following article is a summary of a workshop conducted by W. Gary Smith, Associate Professor, University of Delaware, at the 1994 Delaware Horticulture Industry Expo in Dover, DE.*

The traditional horticulture industry and the environmental restoration industry are two distinct markets for native plants. People that like plants (plant enthusiasts) tend to like the latest trends and right now native plants are “in.” But these plant enthusiasts are only a small percent of the population. Native plants are used in the repair of damaged ecosystems through environmental restoration but this market is relatively small. To expand the market for native plants, we must transplant the philosophy of restoration and reparation into the home landscape. And convince homeowners that their two acres really are part of the “big picture.”

In ecological landscape design, native plants are arranged in planned landscapes as they occur in nature. This design style is based on several fundamental principles. Plants are not individuals but are members of communities. For example, *Magnolia virginiana* is part of a community found in nature that often includes *Clethra alnifolia*, *Aronia arbutifolia*, *Itea virginica* and *Ilex glabra*. By using these naturally-occurring combinations, a landscape develops a sense of place that ties it to the region in which it is planted. It takes time to develop the desired effect in an ecological landscape design. One way to increase the immediate impact is to plant many small plants and remove the extra plants as they begin to grow and crowd out one another. The final tenet of ecological design is that while it may be a low-maintenance landscape, it is not a no-

maintenance landscape. The landscape manager must remove undesirable species and maintain control over the landscape to keep the desired effect.

In ecological landscape design, patterns are borrowed from nature. If one begins with an existing lawn in this part of the country and discontinues maintenance, it will become an open meadow. Herbaceous annuals will predominate the first year followed by perennials, grasses and a few woody species deposited by wind and birds. In years three through ten, a woody old field will develop, characterized by thickets of shrubs underlaid by a perennial mosaic carpet. By years ten to fifteen, dense thickets of woody material will create interior rooms and spaces. After twenty years, a young forest will exist with narrow spaces and vertical lines from the trunks of many closely-spaced trees. An older forest with four distinct layers--canopy, understory, shrub layer and ground layer--will develop eventually. This process of natural succession provides many opportunities to the ecological landscape designer. Open meadows can be created to emphasize views. Woody old fields can be used to create distinct outdoor spaces and rooms. Forests can be used to screen views and wind as well as provide closure and ceilings.

Most consumers are familiar with a traditional style of landscape typified by foundation plantings and large expanses of lawn. Yet homeowners become excited by the possibility of living in a landscape rather than simply viewing it. Native plants can and are used in traditional landscapes. But ecological landscape design takes the use of native plants one step further by using those plants in communities that mimic the way they occur in nature. These “natural ecosystems” can be incorporated into many landscapes including the front yard, the back yard, institutional landscapes, corporate landscapes, urban landscape islands, parking

lots, streamway restorations, rooftop gardens, woodland edge gardens and highway plantings. For example, in a backyard, one can mow selected areas of turf but plant native grasses perennials and shrubs in masses to look like a woody old field. The landscape user will enjoy the visual mosaic and the places created inside the woody old field.

The success of marketing native plants is dependent upon issues that fall into six basic categories--regulations, consumer education, management and maintenance technologies, adequate sources, significance of wildlife and developer education.

Regulations exist in some locations that may specifically prohibit meadow-style landscapes. Those laws can be changed by concerned citizens who are willing to take the time to educate law makers. The use of native landscapes in public places increases everyone's awareness of the desirability of this type of landscape and makes change easier.

Demonstration landscapes are crucial to changing the general public's impression of ecological landscape design. Those visible landscapes should be coupled with publications explaining the landscape style. Nursery associations, educational institutions and public gardens can all play a role in teaching the consumer about ecological landscape design. People already have an overall concern for the environment. We can show them how ecological landscape design fits into that environmental concern. Children are a great place to start. When they learn about ecosystems in school, it becomes a natural extension to explain how those ecosystems can be adapted to the home landscape.

Maintenance and management concerns of ecological landscapes pose some problems currently. There is a lack of appropriate

equipment and expertise for efficient performance of some management tasks. For example, a homeowner who wishes to spread compost on their 3/4 acre site will have a hard time finding a piece of equipment or contractor suited to the job. The alternative is several backbreaking days with a wheelbarrow and a shovel. The landscape manager must be able to identify plants easily in order to keep desirable and eradicate undesirable species. The designer must also understand soil types and site characteristics in order to select species that fit the demands of the site and the design.

So, if we convince every homeowner in Delaware to relandscape their homes following an ecological landscape design, where will they buy the plants? Supply and demand is a tricky issue. Growers aren't willing to produce a sufficient supply until they are certain of the demand. Designers can't sell landscapes until a supply of plants exists. Garden writers can help arouse interest in ecological designs. If more homeowners ask for native plants at the garden centers, the message will eventually reach the grower. But until that time, growers should speculate on some great native plants that homeowners will buy if they are displayed and labeled properly in the garden center.

We can sell ecological landscape design based on what it will do for wildlife. How many people buy birdseed all winter to attract birds? Think how excited they'd get if they knew what one butterfly bush or one shrubby dogwood could do.

The developer poses a tough problem. They have a lot of power and are difficult to reach. A demand from the general public and high visibility in the media may help. We can also work closely with individual developers. By building a network of people and establishing a feeling of trust, we may convince some

developers to employ building techniques that augment ecological landscape design.

The participants of this exciting workshop ended the day by generating the following list of actions to promote native plants and ecological landscape design.

- produce a First State calendar with pictures of native plants featured each month;
- provide speakers on ecological landscape design to science teachers in the schools;
- organize a native plants marketing campaign through the D.A.N.;
- use the new Route 1 in Delaware (or Route 13) as a showcase for ecological landscape design;
- recognize ecological landscapes and active people (especially progressive developers) with awards;
- create “example landscapes” throughout the state with labelled plants and interpretive information to take the mystery out of ecological landscape design;
- ask nurseries to mark or feature native plants in their catalogs; and
- ask garden centers to create native plant displays.

Education consistently emerged as the best way to promote native plants. People get excited when they see how environmental landscape design works. We plan to follow up on some of these ideas at the University. If anyone would like to help or has a specific suggestion, please contact Susan Barton or Gary Smith (831-2531).

## PESTICIDE NEWS

### Insecticides:

MALATHION from Cheminova will be reregistered on flowers, turf, woody ornamentals and greenhouse ornamentals, if approved.

AGREE (B.t. var aizawai strain GC91) from Ciba is conditionally registered for control of lepidopterous pests on ornamentals..

METASYSTOX-R (Oxydemeton-methyl) from Miles Inc. is being canceled on all of its uses, including ornamentals.

NATURALIS (*Beauvaria bassiana* Naturalis L strain) from Fermone Corp. is being tested in 160 greenhouses in Texas and Florida. This biological control shows potential for whitefly management. Pending results of the greenhouse trials, Fermone may pursue full federal registration by late this year.

SPOD-X from Crop Genetics International has received EPA approval for registration as an active ingredient in commercial bioinsecticides for control of beet armyworm in ornamentals. This virus will be marketed by DuPont.

MVP (*Bacillus thuringiensis*) from Mycogen Corp. is an encapsulated bioinsecticide now registered by EPA for use on bedding plants, flowers, ornamentals, turf, shade trees, and nursery trees to control a dozen insect pests.

### Fungicides:

ALLIETE (fosetyl-Al) from Rhone Poulenc is now labeled for usage on roses grown in fields, containers, or landscape to control downy mildew and on ornamental pears, pyracantha and hawthorn to suppress fireblight.

OPTIMA 4F (thiram) from Uniroyal is a new formulation developed to control brown patch, snow mold, and dollar spot on golf courses and other turf areas.

PROSTAR 50 WP (flutolanil) from Nor Am is a new fungicide that recently received EPA registration for use on turf to control brown patch, red thread, pink patch, yellow patch, southern blight, fairy ring and gray snow mold.

MILBAN (dodemorph acetate) from Grace Sierra is a foliar greenhouse fungicide. Its conditional registration has been canceled due to a failure to provide worker exposure studies. It can be used and sold for two years.

ECHO (chlorothalonil) from Sostram Corp. is now available in the US in two formulations. Echo 90 DF and Echo 500 are broad-spectrum fungicides labeled for use on a number of turfgrasses, ornamentals, and conifers.

SYSTREX/NUTRIENT (fertilizer and Bayleton) from Tree Technology systems Inc. is now labeled for control of rust, powdery mildew, leaf blight, leaf spot and tip blight on 17 shade trees and 14 woody ornamentals and shrubs. the formulation is designed for use with the company's Arbor microinjection system.

TERRAGUARD 50W from Uniroyal Chemical Co. Inc. is a systemic fungicide with an expanded label that now includes the causal agents of the following diseases: aerial blight, root rot, black root rot, leaf spot, powdery mildew, root rot/crown canker, root rot/damping off and scab.

### Herbicides:

ROUT (oxyfluorfen/oryzalin) from Grace Sierra is now labeled for usage on English boxwood, Scotch pine, Korean spice viburnum, *Taxus x hicksii* and *Taxus runyoni*.

## RESEARCH BRIEFS

PRISM (clethodin) from Valent is a new herbicide being developed for post emergence control of grasses in ornamental plantings. It is formulated as a .94 EC and will be available in quarts and gallons.

BANNER (propiconazole) from Ciba-Geigy is now registered for use on residential lawns by lawn-care and landscape professionals.

SURFLAN AS (oryzalin) from DowElanco has expanded registered uses to total 208 field-grown and 67 container-grown ornamentals.

KRENITE S (fosamine ammonium) from DuPont has had pine and conifer plantations deleted from its label due to the cost of reregistration.

SNAPSHOT (isoxaben and oryzalin) from DowElanco has expanded registered usages to 105 broadleaf weeds and annual grasses. It is a dry flowable herbicide for broad-spectrum control in landscape- or field-grown ornamentals.

BUGLE (fenoxaprop-ethyl) from Hoechst-Roussel Agri-Vet Co. has received an EPA tank-mix registration for use in combination with Fusilade 2000.

### Other:

SPIN OUT from Griffin Corp. has received EPA approval as a root growth regulator. It promotes the development of a fibrous root system and helps container-grown plants avoid transplant shock.

MAGIC CIRCLE DEER REPELLENT (bone oil) from JC Ehrlich Co. will not be reregistered. Existing stocks may be sold and used.

Two nematodes (*Steinernema feltiae* and *Heterorhabditis bacteriophora*) significantly reduced black vine weevil infestations in containerized rhododendrons. The nematodes do not survive for long without a suitable host. But, periodic additions of a substitute host enabled nematodes to flourish and maintain a population sufficient to combat subsequent weevil infestations.

*Preceding research brief excerpted from American Nurseryman, October 1, 1993.*

Basal sprouts of river birch produced during production can be controlled by pruning existing sprouts and spraying the basal 2 feet of each stem with 0.5% NAA solution. NAA will not burn back or prevent growth of existing sprouts. NAA treatments last about one year. (R.E. Bir and T.G. Ranney)

*Preceding research brief excerpted from American Nurseryman, October 15, 1993.*

Results of studies indicate that initial phlox seed germination is not affected by light but that light inhibits radical extension in later germination stages. This causes slower, more irregular germination. Light influences the time required for germination. Supplemental or incidental light in greenhouses may cause germination problems with phlox. (W.J. Carpenter, E.R. Ostmark and J.A. Cornell)

Results of this study confirm that raw paper mill sludges can be used effectively in nursery container culture. Media amended with 15 or 30 percent of two sources of mixed primary and secondary paper mill sludges supported growth of four nursery cultivars similar to, or better

than, various non-sludge media. (C. Chong and R.A. Cline)

*Preceding two research briefs excerpted from HortScience, Vol. 28, No. 8, August, 1993.*

The cultural practice of limiting water supply to induce cold hardiness was studied. In January, cold hardiness of *Rhododendron* 'Catawbiense Boursault' plants grown under non-stressful water supply conditions (wet and medium regimes) was much below what is considered typical for this group of hybrids. Plants under reduced water supply conditions (dry regime) were able to acclimate and develop tolerance to much lower temperatures. (T. Ankslo and O.M. Lindstrum)

*Preceding research brief excerpted from Landscape Plant News, Vol. 4, No. 3, September 1993.*

*Gypsophila paniculata* is produced for harvest as a cut flower. The cultivar 'Bridal Veil' can be grown at night temperatures as low as 8 C and still produce a maximum flowering response. These conditions decrease the number of flowering plants and potential yields of another cultivar, 'Bristol Fairy.' With 'Bridal Veil,' flower development proceeded more rapidly, decreasing the length of time long-day conditions are required, thus decreasing supplemental lighting needs. 'Bridal Veil' may be a good choice for winter greenhouse production at high latitudes. (P.R. Hicklenton, S.M. Newman and L.J. Davies)

The following native wildflowers show potential for cut flower production: wild blue indigo, purple coneflower, spike goldenrod, maximilian sunflower, and Missouri ironweed. Stratification in darkness at 5 C for 4-6 weeks increased germination percentage, decreased

days to first germination, and decreased germination range for all five species. (C.B. Bratcher, J.M. Dole and J.C. Cole)

Municipal solid waste heavy fraction (MSW HF) consists of non-composted food and yard waste plus paper and fragments of glass, metals, and plastics. Results indicate that the use of MSW HF as a soil amendment for turfgrass sod production may be a viable recycling option. Benefits include, 1) improved soil fertility, 2) greater soil aeration and moisture retention, 3) lower shipping costs due to lower bulk density of production medium, 4) replacement of soil once depleted by sod harvesting, and 5) less time required to produce a marketable sod. (M.S. Flanagan, R.E. Schmidt, R.B. Reneau)

*Nandina domestica* 'Harbour Dwarf' and 'San Gabriel' have potential in the marketplace as interior foliage plants. Consumers appreciate these cultivars for their newness and were willing to purchase them at a price similar to that of other foliage plants of the same size. Both cultivars performed well in an interior environment. But the quality ratings of 'San Gabriel' decreased more than those of 'Harbour Dwarf' during the 35 week post production evaluation. (B.K. Behe, C.F. Deneke and G.J. Keever)

Horticultural cultivars of purple loosestrife were thought to be sterile and thus safe for horticultural use without contributing to the invasive spread of purple loosestrife that is displacing much of the native wetland community in areas in which it becomes established. This study showed that 'Morden Pink' produced viable seeds within four months. So it would contribute to the undesirable spread of this plant. (C.J. Lindgren and R.T. Clay)

*Preceding five research briefs excerpted from HortScience, Vol. 28, No. 9, September 1993.*

Methodology to root and successfully overwinter oak cuttings has been developed. Oak cuttings should be rooted as soon as the first growth flush has hardened. After rooting, place under 75 watt bulbs for 6 to 10 weeks until bud break is evident and fertilize with 200 ppm N liquid fertilizer once per week until mid to late

August.. Then allow to acclimatize for winter. (J.J. Drew III, M.A., Dirr and A.M. Armitage)

Feeding by potato leafhopper on nursery-grown maples causes severe cupping and stunting of expanding leaves, browning of leaf margins, "witches' brooming," loss of annual growth, and reduced market value of trees. Nurserymen can greatly reduce damage by monitoring for leafhopper activity with yellow sticky traps to detect the first appearance of the migratory adults and following with timed, biweekly applications of Tempo 2 during the period of greatest leafhopper activity in May and June. (D.A. Potter and P. G. Spicer)

Copper-treated pots may improve growth of herbaceous bedding plants. Concentrations of 25 or 50 g Cu (OH)<sub>2</sub> (1.8 or 3.5 %) reduced root deformation from containers for most plants tested but results were species and concentration dependent. Additional cultivar and environmental conditions testing is needed before making specific recommendations. (M. A. Arnold, D.L. Airhart and W.E. Davis)

Landscape architects, who specify large numbers of plants and suggest plant material sources, identified two important trends affecting plant material selection for the next five years--water availability and low-maintenance landscapes. Nurseries could market plants in catalogues to LAs by including information about plants relative to these trends. Fifty percent of the total value of plant material

specified was for trees. (M.P. Garver, and K. Bondari)

Cold storage of fall-dug lining out stock allows plants to be harvested and stored when plants are dormant, labor is available and weather is permissible. Plants in cold storage can be kept dormant longer than non-stored plants, thus increasing the duration of the shipping period. Shoot and root growth of November-dug green ash and paper birch improve with increased time in cold storage. At least 14 and 10 weeks of cold storage for green ash and paper birch, respectively, were most beneficial. Post transplant performance of Douglas Fir was poor at all levels of cold storage (more study needed). (J.R. Harris, N.L. Bassuk and T.H. Whitlow)

Herbicides applied at normal use rates generally have no effect on rooting of cuttings of most woody landscape species, even when stock plants are treated repeatedly over several years. (C.J. Catanzaro, W.A. Skroch and P.H. Henry)

Composted turkey litter increased container capacity, available water and bulk density while decreasing air space. In addition, composted turkey litter adequately supplied all macronutrients needed for plant growth except possibly K. Even though composted turkey litter increased container capacity and available water, there was not sufficient water in the container to maintain optimal growth under reduced irrigation frequencies. Generally, plants grown in compost-amended substrates grew as well as those grown in commercial substrate. High electrical conductivity (EC) levels as a result of compost amendment may inhibit root growth of cotoneaster and daylily, especially with reduced irrigation frequencies. (H.H. Tyler, S.L. Warren, T.E. Bilderback and K.B. Perry)

*Acer rubrum* 'Autumn Spire' has just been released. This red maple exhibits a broad-

columnar growth habit, colors earlier in the fall than other red maples, and has fall color beginning as a deep purple-red and progressing to a bright red. Licensing information can be obtained by contacting Dr. Harold Pellett, University of Minnesota Landscape Arboretum, PO. Box 39, 3675 Arboretum Drive, Chanhassen, MN 55317.

*Preceding eight research briefs excerpted from J. of Environ. Hort., Vol. 11, No. 3, September, 1993.*

## **WELCOME NEW MEMBERS**

### **Active Members**

Brandywine Lawn Care  
1916 Harwyn Road  
Wilmington, DE 19810,  
475-1201

Daniel Stiteler, Paul Wick

### **Associate Members**

Chesapeake Nurseries  
27571 Pemberton Drive  
Salisbury, MD 21801  
(410) 742-5622  
Dick Marshall, Mike Marshall, Greg Lanceler,  
John Marshall

### **Individual Members**

Lynn & Jim Harrison  
P. O. Box 77  
Kenton, DE 19955  
653-6829

**Street Tree Fact Sheets (1993).** Focusing on temperate regions in the United States and Canada, the *Factsheets* consists of 400 pages and 480 color photos of 180 species and cultivars with a focus on tree selection for stressful sites, space constraints and maintenance. Available for \$20 from Penn State Publications Office, 112 Agricultural Administration Building, University Park, PA 16802-2602.

**Federal and State Quarantine Summaries.** A quick-reference guide to federal and state nursery stock quarantines and shipping requirements. Available for \$25 plus \$2.50 shipping/handling from American Association of Nurserymen, AAN Publications, 1250 I Street, NW, Ste. 500, Washington, DC 20005; (202) 789-2900.

**Guide to Plant Appraisal.** Now in its eighth edition, the *Guide* gives the professional plant appraiser the latest information on factors influencing the value of plants. Available for \$35 (members) and \$70 (non-members) from AAN Publications, 1250 I Street, NW, Ste 500, Washington, DC 20005.

**Source List of Plants and Seeds.** A valuable reference tool for locating plants and their sources in North America, the 1993 edition lists 400 sources for over 47,000 plants. Available for \$34.95 from Anderson Horticultural Library, University of Minnesota, Minnesota Landscape Arboretum, 3675 Arboretum Dr., P.O. Box 39, Chanhassen, MN 55317.

**Landscape Plants for the Twenty-First Century.** Available for \$7.50 from Erik A. Neumann, Friends of the National Arboretum, 3501 New York Ave., N.E. Washington, DC 20002.

**Sell What You Sow! The Grower's Guide to Successful Produce Marketing.**

Comprehensive book on high-value specialty produce marketing. Available for \$25 from New World Publishing, 3701 Clair Drive, Carmichael, CA 95608, (916) 944-7932.

**Poinsettias: Growing and Marketing.** This book is for growers who would like to improve or expand their poinsettia production and sales. Available for \$29 from Sandy Smith, Ball Publishing, P.O. Box 9, Batavia, IL 60510-0009, (708) 208-9089.

**The Complete Book of Plant Propagation.**

This book by Graham Clark and Alan Toogood is divided into two parts. Part I covers propagation techniques and Part II provides specific propagation information for a wide variety of plant genera. Available for \$29.92 from Ward Lock: London, 1992.

**Handbook of Integrated Pest Management for Turf and Ornamentals.**

This book by Anne R. Leslie combines research work on pest problems with information on practical implementation of the necessary tools. It provides case studies of successful operations and explains the rationale and benefits of employing an IPM plan. Order from Lewis Publishers 2000 Corporate Blvd., NW., Boca Raton, FL 33431, (800) 272-7737. Cost is approximately \$100.

**September 27 - October 1** - 1993 Professional Courses. Wetland Delineation, Environmental Concern Inc., St. Michael's, MD. Tel:(410)745-9620, FAX:(410)745-3517.

**December 3-6** - 43rd Annual Meeting, Eastern Region, International Plant Propagators Society, Amway Plaza Hotel, Grand Rapids, Michigan. For program/registration information contact: Dr. Darrel Apps, 824 Williams Lane, Chadds Ford, PA 19317. Tel:(215)388-6901, FAX:(215)388-1723.

**December 8** - Grounds Managers' Winter Seminar. Warrington Motor Lodge, Warrington, PA. Contact Scott Guiser (215) 345-3283.

**December 9** - Regulatory Compliance Seminar. Neshaminy Manor Center, Doylestown, PA. Contact Russ Powell (215) 345-3283.

**December 14** - Coping with Labor Problems (third in series). Penn State Great Valley, Malvern. Contact Russ Powell (215) 345-3283.

**December 15** - DE/MD Turf and Ornamentals Workshop. Sheraton Inn, Dover. Contact Susan Barton (302) 831-2531.

**December 16** - How to Conduct Worker Protection Training. A National Satellite Videoconference, 12:00 noon - 3:00 p.m. Penn State Great Valley Campus, Malvern, PA. Contact Dave Suchanic (215) 489-4315.

**December 17** - Pesticide Safety for Landscape Contractors Course. Rutgers University. Tel:(908)932-9271.

**January 2-7** - Maryland Cooperative Extension Service Advanced Landscape Plant IPM Short Course. University of Maryland. Contact David Laughlin. Tel:(301)405-7665.

**January 3** - Landscape/Nursery Weed Control Symposium. Hyatt Regency Hotel, Second Floor, Constellation B, Baltimore, MD. Contact Jeffrey Derr (804) 363-3912.

**January 4-6** - 1994, Winter Mants. Baltimore Convention Center, MD. Contact Carville Akehurst. Tel:(410)245-1799, FAX:(410)256-2208.

**January 4,11,18,25** - Intermediate Landscape Design Course. Rutgers University. Tel:(908)932-9271.

**January 7, 14, 21, 28** - Urban Forestry Course. Rutgers University. Tel:(908)932-9271.

**January 7-March 18** - (11 consecutive Friday afternoons), Basics of Landscape Design Course. Rutgers University. Tele:(908)932-9271.

**January 7-March 18** - (11 consecutive Friday afternoons) Basics of Plant Materials for Landscape Use Course. Rutgers University. Tel:(908)932-9271.

**January 10-11** - Greenhouse Systems, Design and Environmental Control Course. Rutgers University. Tel:(908)932-9271.

**January 10-13** - Maryland Cooperative Extension Service Advanced Turfgrass IPM Short Course. University of Maryland. Contact David Laughlin. Tel:(301)405-7665.

**January 10-13** -Eastern Pennsylvania Turfgrass Conference and Trade Show. Valley Forge Convention Center. Contact Scott Guiser (215) 345-3283

**January 12** - Winter Landscape & Nursery Conference. Urbana Firehall, MD Contact F.A.L.C.A.N., J.L. Bradshaw, 6310 Ed Crone Lane, Frederick, MD 21701.

**January 18-19** - Delaware Horticulture Industry Expo, Sheraton Inn, Dover, DE. Time: 8:30 a.m.-4:00 p.m. Contact Susan Barton. Tel:(302)831-2531 or Linda Pevey (301)653-1021.

**January 18-21** - Maryland Introductory cut Flowers Short Course. Montgomery county Extension Office, Derwood, MD. Contact Stan Gill (301) 596-9413.

**January 20** - Winter Nursery Seminar. Delaware Valley College. Contact Dave Suchanic (215) 489-4315.

**January 24- 27** - Professional Horticulture Conference of Virginia, Ltd., Virginia Beach VA. For information call Tom Tracy or Polly Carden, Tel:(804)523-4734.

**January 25,26 and February 1,2** - Street Tree/Shade Tree ID Workshop. Tyler Arboretum. Contact Rick Johnson (215) 565-9070.

**January 26** - Woodland Owners Workshop. Montgomery Co. Ext. office, Creamery, PA. Contact Dave Suchanic (215) 489-4315.

**January 31** - 4th Annual Pesticide Conference, Sheraton Inn, Dover, DE (Note change of location). Time: 8:30 A.M. - 3:30 P.M. Recertification credit will be awarded. Registration required. Contact Susan Whitney.

**February 1** - Maryland Greenhouse Growers Annual Conference. Location to be announced. Contact Wayne Clark (410) 747-2484.

**February 1,8,15** - Intermediate Landscape Design Course. Rutgers University. Tel:(908)932-9271.

**February 2** - 18th Annual Extension Landscape Conference, Hunt Valley Inn, 83 Schawan Road, MD. Contact Russell Balge (410) 666-1021.

**February 3-6** - WNGA/NLA/GCA Management Clinic, Louisville, KY. Contact AAN (202) 789-2900.

**February 4** - Urban Forestry Course. Rutgers University. Tel:(908)932-9271.

**February 7-8** - 29th Annual Shade Tree Symposium and Trade Show. Penn-Del Chapter, International Society of Arboriculture and Penn State University Cooperative Extension. Lancaster Host Resort and Conference Center, Lancaster, PA. Contact Elizabeth Wertz, P.O. Box 293, Bedminster, PA 18910. Tel:(215)795-2096.

**February 14-16** - Pennsylvania Nursery Conference. Herchey Convention Center. Contact Dr. Larry Kuhns (814) 863-2189.

**February 15** - LCA Winter Workshop. Rockville, MD. Contact LCA, 9053 Shady Grove Court, Gaithersburg, MD 20877.

**February 23** - Mid Atlantic Interior Landscape Conference. Longwood Gardens, Kennett Square. Contact Russ Powell (215) 345-3283.

**March 1** - Grounds Maintenance Seminar. Kutxtown Grange Hall, Kutztown, PA. Contact Eric Vorodi (215) 391-9840.

**March 2** - Garden Center and Landscape Conference, Holiday Inn, Lionville, PA. Contact Russ Powell (215) 345-3283.

**March 10** - Integrated Pest Management Conference. Swarthmore College, Swarthmore, PA. Contact Dave Suchanic (215) 489-4315.

**March 16** - Estimating and Bidding for Landscape Maintenance Workshop. Penn State Great Valley, Malvern, PA. Contact Russ Powell (215) 345-3283.

**July 9-13** - International Floriculture Industry Short Course. Cincinnati Convention Center, Cincinnati, Ohio. Contact Ohio Florists' Association (614) 487-1117.

**July 13-16** - AAN Convention. Baltimore Convention Center, Baltimore, MD. Contact AAN (202) 789-2900.

**July 14-16** - Summer MANTS. Baltimore Convention Center, Baltimore, MD. Contact Carville Akehurst (301) 256-6474.