

ASSOCIATION NEWS

Linda Pevey

Executive Director, D.A.N.

The Board of Directors recently approved the FY 1994 budget (September 1, 1993-August 31, 1994). Spending highlights include the purchase of a new exhibit for the association, promotion of the Delaware Certified Nursery Professional program, and a membership drive. Look for the new D.A.N. exhibit at the 1994 Delaware Horticulture Industry Expo in January.

It's that time of the year again--time to renew your membership in the DAN. Please get your renewal in right away if you have not already done so. The deadline for the printing of the new 1994 Membership Directory is fast approaching.

Congratulations to Donna Feliceangeli, All Seasons Nursery & Garden Center, Dover, on becoming a Delaware Certified Nursery Professional. Donna is now certified as a Turfgrass Specialist and a Garden Center Specialist. Donna is one of several CNP's employed at All Seasons'.

For those of you who are CNPs, don't forget that your certification must be renewed every three years. You should have recently received a report indicating your recertification credit status. If you need credits for renewal, there are still some opportunities available before the end of the year, including the Delaware/Maryland Turf and Ornamentals Workshop. See the Calendar in this issue for more details.

Plans for the 1994 Delaware Horticulture Industry Expo on January 18 & 19 at the new Sheraton Inn Conference Center are moving ahead. We have a great program lined up that includes workshops, seminars and a trade show. Details will be in the mail to you shortly. We had an enthusiastic response from our members

(and non-members) to our request for sponsors for speakers and events at the Expo. Sponsor donations have been made by Brandywine Nurseries, Dover Rent-All, Forest View Nurseries, Helena Chemical Co., J. B. Landscaping, Jonathan Green, Lakeside Greenhouses, Moon Nurseries, Mid-Atlantic Florists and Growers Insurance, Peninsula Nurseries, Rohm & Haas Co., The Sterling Nursery, Fred Wick's Quail Run Nursery, Joseph Wick Nurseries, and non-members Bell Atlantic Mobile, Del Ag Aero Aerial Applicators, and Maryland Aquatics. We sincerely appreciate the support these businesses have provided. We are looking forward to the best Expo ever. We hope to see you there in January.

The D.A.N. Cellular Telephone plan is now in place with Bell Atlantic Mobile. This plan offers substantial discounts to our members only, in Delaware and surrounding states. Contact Russ Smoot at 270-1430 or Cheryl Noti at 892-3222 to get new service or to convert existing service to this pricing plan. Many of our members have already taken advantage of the great rates this plan offers.

As you know, we were forced to cancel the Fall Dinner Dance due to low interest. We would like to hear from you about what type of events you would like to see the D.A.N. sponsor. We have already received some interesting suggestions for alternative events, but we would like to hear from you. Please call me or drop me a note with your suggestions.

The D.A.N. will be kicking off a membership drive in January at the Delaware Horticulture Industry Expo. We hope to increase our membership by 50 new members in 1994. The effort will continue throughout the year and will include a D.A.N. booth at the Summer MANTS. In addition to recruiting new members at MANTS, we hope to benefit from the great

exposure that MANTS will provide to raise awareness about our association.

D.A.N. T-shirts are available for sale. They are teal green, short-sleeve shirts with the D.A.N. logo in white. They can be purchased for \$10.00 by sending a check payable to D.A.N. along with your shirt size (M, L, XL) to the D.A.N. office (331 Merrill Way, Smyrna, DE 19977).

Congratulations to Susan Barton for her nomination for the prestigious AAN Nursery Extension Worker Award. Sue's contributions to the industry have been enormous, and we appreciate all the hard work she does for the association and the horticulture industry in this state. Congratulations on your nomination!

The US. Small Business Administration (SBA) has announced that Federal disaster loans are available to nurseries in all 3 Delaware counties as a result of damages and losses caused by drought. Loans are available up to \$1,500,000 at 4 percent interest with terms up to 30 years. Call 1-800-359-2227 between 8:00 am and 6:00 pm for more information and an application (Declaration No. 8079 (S-685). Deadline for filing an application is April 11, 1994.

The "America the Beautiful" Council (Urban and Community Forestry Advisory Council, UCFAC) is planning a banquet on February 10 at the Blue Coat Inn in Dover. Guests will include Council members and tree grant recipients who will be looking for trees to purchase in the spring. Those of you who are on the contractors' list will also be receiving an invitation. This will be a good opportunity for you to make contacts with the communities that will be looking for trees.

Rosemary and Julian Richardson of Pleasant Hill Farm recently hosted an interesting event at their farm in Rising Sun. Called the Haunted

Hayride, the event benefited the YMCA in Dover, and included the Haunted Hayride and a very scary Haunted Cellar. They also had tents set up with fortune telling, face painting, and story telling. Although it was scheduled for three nights, heavy rain forced the cancellation of the events on Saturday night right before Halloween. Despite that, over 1500 people took part in the festivities which raised several thousand dollars for the Y. Hats off to Rosemary and Julian for undertaking this benefit event.

We are hoping to see an industry survey in the near future. The Delaware Department of Agriculture will be conducting the survey for us. We feel it is very important to accurately define the size of the horticulture industry in the state. According to the Department of Agriculture, this is probably the fastest-growing segment of agriculture in the state. We would really like your cooperation with this survey when it gets underway. All data will be collected and maintained in a confidential manner.

U OF D NEWS
Susan Barton
Extension Specialist

The 1994 Ornamentals Short Course Program is off to a good start. We have completed three short courses, with good enrollment. The winter/spring series will finish up with "Diagnosis and Control of Insects on Woody Ornamental Plants" on March 15, 17, 22, & 24 and "Pruning and Landscape Maintenance on April 12 & 14. The look for "Herbaceous Landscape Plants," "Poinsettia School," and "Lawn Establishment & Maintenance" in August followed by "Drafting Techniques for the Landscape Designer" in October and November. Don't miss these excellent opportunities to learn the latest techniques and information for the nursery and landscape industry.

Spring newsletters are about to begin. The first issue of Garden Check has gone to press. Ornamentals Hotline will begin in mid-March and subscriptions have skyrocketed due to notices sent to the Southeastern Pennsylvania mailing lists. Dewey Caron's and my participation in the SE PA IPM group should help us associate degree days with insect activity to help you fine tune your pest control program.

The UDBG Friends received three awards for their Philadelphia Flower Show display. They were "Best in Class" ?Join the UDBG Friends and get involved in this exciting resource. For more information call 831-2531.

The UDBG Plant Sale will be held on April 23rd and 24th at the Fischer Greenhouse behind Townsend Hall. Look for plants that are difficult to find in the nursery trade (see enclosed order form). The proceeds from this sale are used for student internships and garden projects.

I would like to express my sincere thanks to the members of The Delaware Association of Nurserymen for the Award of Merit I received at the Horticulture Industry Expo. It was a nice surprise. Thanks to all of you who have worked with me over the past nine years to promote the nursery/landscape industry in Delaware. My programs would not be successful without your participation. Please send me suggestions for future programming or projects you would like to see happen.

COMPOST AND DISEASE SUPPRESSION

Susan Barton
Extension Specialist

The following article was excerpted from a talk presented by Dr. Eric Nelson, Assistant Professor, Cornell University, at the 1993 Delaware Turfgrass Conference in Hockessin, DE.

Compost has the following beneficial properties:

- pest suppression
- high level of microbial activity
- high cation exchange capacity
- improved water retention
- good source of humified organic matter
- increased earthworm activity
- high absorptive capacity for pesticides and pollutants.

Compost also has some problems:

- phytotoxic by-products
- difficult to control fertilization rates
- excessive growth
- layering
- odor

Aerobic composting is a microbial process that takes place in three phases.

1. In the **mesophyllic phase**, temperatures rise rapidly due to metabolic rates of organisms.
2. In the **thermophyllic phase**, temperatures reach 130 to 150 °F. The tough tissues such as cellulose decompose. Only a few organisms are involved in this phase. The length of time depends of the material you compost. It is best to compress this phase to as short a time as possible.
3. The **cooling and maturation phase** takes place as the temperature decreases and the compost becomes recolonized by microorganisms.

Disease control strategies with compost have been researched in the following areas:

- topdressing amendments
- construction mix amendments
- turf covers
- compost teas
- seed treatments

Topdressing:

Topdressing composed of 30% compost and 70% sand were applied to golf greens at the rate of 10lbs/1000 ft² (1 mm on turf surface). Some composts suppress specific diseases. One may work against snowmold but not pythium. Ringers' Compost Plus is good for dollar spot. Turkey litter works well on suppressing brown patch and red thread by doesn't suppress snow mold. Brewery waste suppresses gray snow mold and pythium root rot by not dollar spot.

The brewery waste showed variability between batches.

Root Zone Mixes

Brewery waste, sewage sludge and dehydrated manure were all suppressive to pythium. The suppression lasted even two years after the plot was established.

Turf Covers

Applications of 200 lbs/1000 ft² (1/2" of material on turf surface) must be removed before turf resumes growth in the spring. This method works to control gray snow mold and residual control throughout the season was observed.

Compost Teas

Compost teas are extracts made from compost. The compost is soaked in water for 3, 15, or 19 days. The best extraction period seems to be 3-7 days. Fungi populations crash if extractions run much longer. Filter out the compost and spray the treatment area with the remaining liquid. Compost teas have been made from brewery waste, cow manure and sewage sludge. When making compost teas, use only well-aged composts. Mix one part compost with five parts water and soak for 3-7 days at 65-75 °F (higher temperature--less activity). Place compost in a burlap bag to make the filtering step easy. Apply undiluted or diluted (up to 10x) compost tea to treatment area and repeat at 14 day intervals.

Why do these compost treatments suppress disease? Is the mechanism microbial or chemical? If sterilization removes the suppressiveness, the mechanism must be microbial. But chemicals such as ammonia, produced by poultry waste, can suppress seed germination, so poultry waste use is restricted

to established turf. Antibiotics produced by fungi may work to suppress disease. It may be possible to develop these organisms and make preparations to be used as a microbial fungicide. It may be possible to inoculate compost with specific microorganisms to decrease the variability. You can take compost and assess the level of microbial activity in the lab (1/2 hour test) to predict pest suppression. The following turf diseases were suppressed with the following compost treatments:

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)₂ (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.