

**ASSOCIATION NEWS**  
**Marianne McGloin**  
**Executive Director, D.A.N.**

Spring is just around the corner and there are many changes taking place in 1997 that I would like to tell everyone about. First, thank you for returning the membership survey to the office. The answers were very encouraging and we are always striving to please our members. Anyone who is interested in volunteering on a committee or who has suggestions for the upcoming shows, please call the office.

The first new item is the D.A.N. web site. In conjunction with PlantAmerica, you can now surf the D.A.N. on the internet. PlantAmerica is a web site on the internet where horticulturists can search for photographs and text about a wide variety of plants including woody plants, herbaceous plants and tropical plants from the country's leading authors. You can also access NurseryNet to search plant availability information and participating nurseries. Finally, they have created a section devoted entirely to state associations and that is where you will find the D.A.N. The PlantAmerica web site is [www/PlantAmerica.com](http://www/PlantAmerica.com). In the D.A.N. web site, you will find a calendar of upcoming events, a list of current members, CNP information, the D.A.N. newsletter and much more. You can now reach me by e-mail at [TUGMCGLOIN@AOL.COM](mailto:TUGMCGLOIN@AOL.COM) for your convenience. The D.A.N. has definitely caught the wave!

Second item of interest is that the AAN has unanimously voted to change its name to the American Nursery and Landscape Association. More information will follow as the Board of Governors will vote on this matter at the upcoming summer convention in Nashville, TN. Any concerns or comments can be made to our AAN Governor, Jamie Jamison at Brandywine Nurseries, (302) 429-0865. I would also like to

announce that one of our members, Frederick J. Wick of Fred Wick's Quail Run Nursery was elected region II director of the Wholesale Nursery Growers of American (WNGA). WNGA is the grower division of the American Association of Nurserymen. Also, Dick Kauffman, of London Grove Nursery was presented a Life Membership award from the Pennsylvania Landscape & Nursery Association. Congratulations Fred and Dick!!

The next CNP date has been set for October 21, 1997 at the Department of Agriculture in Dover. The test in March has already been administered. This is a good time to begin preparing for the fall exam. Short courses are available through Cooperative Extension and manuals are available at the D.A.N. office.

The Summer Turf & Nursery Expo will be held at Joseph Wick Nurseries, LTD. on August 14. It is a great opportunity for hands-on education, pesticide credits, CNP credits and camaraderie with your fellow nursery and landscape professionals. Mark your calendars for August 14.

Regarding the Delaware Water Plan, I received the final draft from Steve Castorani. Delaware Natural Resources and Environmental Control (DNREC) supports the plan and will get the ball rolling to pass it through legislation. I will keep you informed on the status of the plan.

There is one legislative issue I would like to mention. Senator Larry Craig (R-ID) has introduced into legislation S,169 titled the "Agricultural Workforce Stability and Protection Act." This bill will provide the much needed reforms to the existing H-2A agricultural guestworker program. Since the nursery industry depends heavily on the supply of legal, alien agricultural workers, this bill is important to our industry. As everyone is aware, there have been significant changes to our

immigration laws that have created deep concerns about the availability of these workers. H-2A is the only means by which agricultural employers may obtain seasonal alien workers during periods when there is an adequate domestic workforce. H-2A is under heavy fire from Congress and nurseries have been subject to INS raids. These raids have forced shutdowns of nurseries and deportation of these alien workers. S.169 would overhaul the H-2A program so that it becomes an effective and usable tool for the nursery industry. The AAN is urging everyone to write their senators in support of this bill. I have a sample letter, which is available to the membership. Please call the D.A.N. office if you are interested.

## **WELCOME NEW MEMBERS**

### Active

Campbell's Landscape Services  
P.O. Box 1631  
Hockessin, DE 19707  
(302) 266-0117

Dorman's Lawncare  
7 Lantern Lane  
Lewes, DE 19958  
John Dorman  
(302) 645-1697

Four Seasons Landscape Service  
97 Madison Avenue  
Newark, DE 19711  
(302) 453-9398

Fox Landscaping Corporation  
Rt. 6 Box 111  
Millsboro, DE 19966  
Chris Fox  
(302) 945-5656

La Villa Maria  
711 Blackbird Forest Road  
Smyrna, DE 19977  
Franz Kalb  
(302) 653-9712

Landis Tree Farm  
3 Fox Run Drive  
Hockessin, DE 1970788  
Jim Landis  
(302) 239-4637

### Associate

Bayshore Ford  
4003 N. DuPont Highway  
New Castle, DE 19720  
Mike Rumsey

Department of Agriculture  
2320 S. DuPont Highway  
Dover, DE 19901  
Lynn Harrison  
(800) 282-8685

Earle R. Kligge Nursery  
9341 Torrespave Avenue  
Philadelphia, PA 19114  
(215) 338-7677

Green Slipper  
208 Central Drive  
Chestertown, MD 21620

Greenscape Inc.  
733 Willow Grove Avenue  
Glenside, PA 19038  
(215) 885-7526

Resort Landscaping & Irrigation  
RR1, Box 133-F  
Frankford, DE 19945

## CONGRATULATIONS CNPS!

Douglas Clark  
Delaware River and Bay Authority  
*Retail Specialist*

Debbie Mulholland  
Springhaus Landscape Co.  
*Landscape Design Specialist*

Steve Price  
Springhaus Landscape Co.  
*Retail Specialist*

Matt White  
Landscape Services  
*Nursery Production Specialist*

### Quote for the quarter

You can delegate authority, but not responsibility.  
Stephen W. Comiskey ([www.agoodlawyer.com](http://www.agoodlawyer.com))

Happy Spring,  
Marianne

## U OF D NEWS

**Susan Barton**  
**Extension Specialist**

Hi everyone. It's great to be back. As most of you know, I completed a six-month professional leave in December. I worked on a variety of projects. I conducted research for the Horticulture Research Institute (HRI) on industry funding of nursery and landscape research on the state and regional level. I prepared a table outlining the funding mechanisms for each state and regional association. I also collected titles of research projects funded over the past five years. HRI has applied for a grant that would allow them to put this information on the web. If you have a question or a problem, you could search this site to discover who is researching the issue about which you are concerned.

I also evaluated and made recommendations for the Longwood Gardens guided school tours program. I thoroughly enjoyed seeing both the Chrysanthemum Festival and Christmas display many times as I conducted my evaluation.

During September through November, I worked at Homestead Gardens in Davidsonville, MD and Country Market Nursery in Mechanicsville, PA. At Homestead I learned about merchandising from their fabulous decoratives team as we set up the Christmas display. At Country Market, I worked with a team of managers to develop a signage program to increase uniformity, improve image and increase efficiency of sign production. I also helped them establish a lawn and garden information center and evaluated their kids program.

It was a busy fall, but I learned a lot and hope to bring those new experiences to all of you in the form of newsletter articles, short courses and consultations.

The 1997 short courses have gotten off to a great start. We have had excellent participation from the industry with record sign-ups and enthusiastic evaluations. We will take a break from courses while you all are busy this spring but a new line up will start in May. We will offer Flowering Shrubs and Trees for the Landscape (John Frett) on May 5, 12 & 19 from 3-5 PM in Newark; Weed Control (Gordon Johnson) on June 9, 16 & 23 from 3-5 PM in Newark; Herbaceous Plant Production (Jay Windsor) on July 15, 17, 22 & 24 from 6-8 PM in Georgetown; Running a Landscape Business in the Electronic Age (Jo Mercer) on August 6, Newark; Shade trees for the Landscape (John Frett) on August 19, 21 & 26 from 3-5 PM in Newark; Diagnosis & Control of Diseases on Woody Ornamental Plants (Bob Mulrooney) on September 11, 16 & 18 from 4-6 PM in Georgetown; Diagnosis & Control of Insects on Woody Ornamental Plants (Jay Windsor & Derby Walker) on September 23 & 25 from 4-6 PM in Georgetown and Ecological Landscape Design in November in Newark.

Ornamentals Hotline (our weekly pest and cultural problems newsletter) is in its fourth year of publication. We started publishing in mid-March. If you haven't subscribed but would like to learn about the pests and problems that occur in landscapes, nurseries and greenhouses on a weekly basis, give me a call (302-831-1375) and we'll send you a subscription form.

The D.A.N. is on the web. The board of directors decided to participate in the PlantAmerica web site. This site includes photos and text on over 10,000 plants in the Signature Authors Series, nursery product listings in the NurseryNet component and web pages for all participating state nursery associations (including D.A.N.). NurseryNet offers a free service for landscapers and retailers to look for plant material as well as an on-line trade show for nurseries interested in posting

their plant availability. Nursery growers and rewholesalers who are interested in posting their materials on the site, may call (516) 674-4238 or contact PlantAmerica through their web page. With any product or service purchased from PlantAmerica, a 20% donation will be made to the D.A.N. to further activities on your behalf. Our web page includes membership information, the D.A.N. News, CNP information, pictures of the D.A.N. Plants of the Year and much more. Check us out at: <http://www.plantamerica.com>.

## INDUSTRY NEWS

This is a new column we are trying out in the D.A.N. News. Its an opportunity for you in the industry to communicate with each other. Send me information you'd like to share with fellow D.A.N. members and I will include it in this column. D.A.N. News issues are published in March, June, September and December. If you get me the information by the end of the preceding month (and usually even the first week of the publication month), I can guarantee its inclusion in the newsletter.

Al Sonchen has joined GRIZZLY'S, a mulch and topsoil distributor, as a Senior Sales Associate. Al has worked in the horticultural and lawn care business for 25 years, most recently as Sales Manager with a national commercial landscape supplier. Al resides with his family in Newark.

GRIZZLY'S has entered into an agreement with Maryland Environmental Systems to distribute *Leafgro*<sup>R</sup>. *Leafgro*<sup>R</sup> is a superior quality compost used extensively by the landscape industry and homeowners as a source of humus for soil improvement. Incorporating *Leafgro*<sup>R</sup> into landscape areas replenishes the organic portion of the soil and thus creates a more productive topsoil.

**DE DEPT. OF AGRICULTURE  
PLANT INDUSTRIES NEWS  
Lynn Harrison, Sr. Entomologist  
Randy Ciurlino, Sr. Entomologist**

At the request of the Delaware Christmas Tree Association, the Department of Agriculture Plant Industries Section visited several Christmas tree sales outlets statewide. We inspected establishments who grew and/or sold cut or B & B trees, greenery, Christmas plants and the like. Even though there is a large source of Delaware-grown, inspected, certified trees, many still seek outside sources for their bulk tree purchases.

A total of 103 sites were visited during the first two weeks of December. There were 53 businesses which were already certified. The remaining 50 places we visited did not have a Nursery Industry License. Persistent staff members have since managed to bring 46 of the 50 unlicensed sales outlets into compliance. The remaining four establishments are Christmas tree sales only and are not currently in the plant sale business. We have names, addresses, and a contact phone number, so we will continue to follow the dictates of the Delaware Nursery code until we have resolved the issue.

The Plant Industries Section is in the process of conducting interviews for the new nursery inspector's position. A total of 30 applications were received at the Department. All 30 were scored and rated by an independent panel. The top 15 candidates on the certification list have been scheduled for interviews. We hope to have the interview process completed by the end of February and a candidate on staff by the end of March or early April. This individual will be hired to work more closely with the retail aspects of the nursery industry.

In the past few years, the industry has grown significantly. This will increase the number of regulatory personnel in the Department of Agriculture. Increased interstate and out of the country movement of plant materials has necessitated increased monitoring by state and federal regulatory officials. The opening of foreign trade markets has also allowed more plant material to come in from other parts of the world, thereby creating many avenues for introduction of new plant pests. Even the floral industry is a potential source of new pest introductions through wholesale plant products coming in from South America.

The USDA-APHIS has recently discovered the presence of the Asian longhorned beetle (ALB), *Anoplophora glabripennis* (Motschulsky) in Brooklyn and Long Island, New York (NY). ALB is a cerambycid beetle, and unlike most other members of this family it attacks and successfully kills healthy, live trees. The body of the adult ALB is about one inch long, black with conspicuous white spots and robust antennae about two inches long. ALB is native to western Asia and its ecology and host range suggests that it could occur anywhere in the continental United States (US). Many hardwood tree species are at risk for infestation including: *Acer*, *Aesculus*, *Malus*, *Melia*, *Morus*, *Populus*, *Prunus*, *Pyrus*, *Robinia*, *Salix*, *Ulmus* and various citrus species. Since ALB attacks trees from 1/2-inch caliper and up, it is considered to be a threat to 279 million acres of hardwood forest in the eastern US. Currently, NY state has quarantined the affected areas, and USDA-APHIS will follow suit with a federal quarantine. Plans are set to perform a full scale eradication of ALB this spring. Please note, this pest is not considered to be established in the US.

If you need additional information, you may contact the Department of Agriculture, Plant Industries Section at 1-800-282-8685 (Delaware

only), (302)739-4811, by fax at 1-302-697-6287, or E-mail at [lynn@smtp.dda.state.de](mailto:lynn@smtp.dda.state.de).

**BAGGED MULCH ALERT!**  
**Don Eggen, Plant Industries Administrator**  
**Delaware Dept. of Agriculture**

The Delaware Department of Agriculture (DDA) would like to inform you about a problem that is occurring with the bagged mulches you are receiving to sell your customers. Mulch has been found to have a very high volume shortage in two and three cubic foot bags. Nationally, 80% to 85% of the bagged mulches have been found to be short by more than 5%.

The DDA's Weights and Measures Section will be conducting tests on these packages soon. The packages will be opened and placed on a measuring standard. If these packages are found to be short, they will be ordered Off Sale. No legal action will be taken at this time. If problems continue, further action may be taken against the distributor of the mulch products, as well as the retail location selling the products.

Since Delaware hasn't tested mulch on a regular basis, there is a strong possibility that you are receiving other state's rejected lots. DDA suggests you contact your suppliers who process and package mulch and notify them that testing will be conducted in Delaware.

The DDA Weights & Measures and Plant Industries Sections will be holding an informational meeting and demonstration on Monday April 28, 1997, from 10:00 A.M. to 12:00 noon in Dover. At this meeting we will review DDA's testing procedures, instruct you on how to conduct your own testing as shipments are delivered, and suggest the course of action you should take if you find mulch packages that are short.

DDA is committed to helping you solve this problem. Call Steve Conners or Lynn Harrison

at (800)282-8685 or (302)739-4811 with any questions.

**ADVANCED MARKETING FOR  
LITTLE DOLLARS**  
**Susan Barton**  
**Extension Specialist**

J. Paul LaMarche conducted two two-hour workshops at the Horticulture Industry Expo in January. He presented some great ideas that worked for his clients. Here are a few of them.

- Free plant food - offer liquid fertilizer (20-20-20) free to customers with a \$1 deposit for containers. Allow customers to refill as often as they wish, encouraging frequent visits.
- Guarantees - offer generous guarantees such as, three years, lifetime - as long as you own the plant. It removes the fear of failure, increases sales and results in low returns.
- Connoisseur collection - pick the owner's or manager's favorite plants, display them in a special section with attractive signage. Sales in that area will soar.
- Idea centers - show customers how to use plants in mini-landscapes or simple combinations.
- Seasonal charts - use this for vegetable gardens as well as flower gardens. Keep customers buying and planting all season long.
- POP supplied by growers - select growers that provide point-of-purchase materials. Good photos and signs will increase sales.
- Signs - use as silent salespersons. Ask for feedback on service with signs and give a number to call (the owner). Explain the services you provide with signs throughout the garden center. Thank people for shopping in your store with an exit sign. Put catchy slogans on changeable letter signs. People will start to look for them. That brings your garden center to the top of their mind.

- Ads - concentrate on plants and selection in advertising (or the appropriate competitive edge for your business). Design campaigns that include a “tip of the week” with an appropriate graphic in each ad. Use postcards for direct mail advertising. Provide custom wrapping with your ads printed on the back of the wrapping paper.
- Perennial of the month club - give a small perennial away each month with a punch card. This program gets customers to visit you 12 times a year!
- Funny \$ - print up “your garden center” bucks and return 10% of each sale to the customer in store bucks. Then allow customers to spend their store bucks for up to 50% of the purchase price of any item during a particular event or promotion (not during the peak season!)
- Parking tickets - place parking tickets on each car in the parking lot on a busy weekend. Make them look like tickets but include coupons for purchases made later in the season. The parking ticket concept will get their attention.
- Easter Eggstravaganza - conduct an egg hunt for kids. Offer discounts on rabbit statuary. Promote flowering pot plants.
- Mother’s Day - offer inexpensive geraniums to attract a crowd. Get a magician for the kids. Sponsor a contest on why my Mom’s the greatest (You can often get national companies to fund prizes in exchange for the publicity you provide.)
- Father’s Day - offer tree planting free with each large tree purchase. Conduct a batting cage championship. Sponsor a “why my Dad’s the best” contest. Offer your site for an antique car show.

To promote a landscape business, Paul La Marche had some more suggestions:

LaMarche also discussed some specific promotions that coincide with holidays throughout the year.

- Valentine’s Day - send personalized invitations and suggest different Valentine’s Day gifts.
- Earth Day - give away tree seedling. Release lady bugs (with major fanfare); give away a free recycled plastic brick to place in toilet bowls (to conserve water), sponsor essay contest for children on the importance of trees. Award prizes such as bicycles for a family of four or tree planted in the winner’s name in a prominent location in the community. Offer half price on large caliper shade trees.
- Promotional packets - develop packets to leave with prospective landscape customers that include before and after photos of great jobs, your guarantee policy, testimonials from satisfied customers and packets of seeds (use forget-me-nots as an attention-getter).
- Employee want ads - use the ads you place to attract new employees to communicate your professionalism to everyone else who reads the classified ads. Use phrases like “we are looking for creative, competent people” to create a desirable image.
- Professional phone reception - answer phone enthusiastically and book appointments immediately. Customers will call businesses until they successfully book an appointment. Most people don’t bother to meet with more than two contractors. If you are more available to schedule appointments, you will get more business.
- Address client concerns - Number one is on-time and on-budget. Write down a starting date on the contract to close each sale. Site etiquette can make a big difference. On the first day of the job, have the foreman introduce him or herself to the neighbors and

answer any questions about the project and any impact it might have on them.

**MANAGING TREES TO REDUCE RISK**  
**Susan Barton**  
**Extension Specialist**

Dr. Bruce Fraedrich from the Bartlett Tree Experts Research Laboratory in Charlotte, North Carolina provided an excellent lecture to the Community Forestry Council in January, 1997. Here is a summary of his lecture.

All trees have a certain amount of inherent risk. But a hazardous tree is one with known defects that predispose the tree to an unreasonable risk of failure. Risk has two contributing components--a significant defect and a vulnerable target (either people or property). Risk is also affected by the value of the target and the intensity of its use.

Tree failures are most often caused by failures of branches (40%). The balance of failures are split between failures caused by roots (30%) and those caused by stems (30%). To assess tree structure, a professional will start by conducting a visual tree assessment. In fact, 95 percent of the time a visual tree assessment is all that is necessary to make a calculated decision about tree risk. Further analyses include decay analysis, root collar excavations and root decay analysis.

Above ground failures are the easiest type to diagnose. Of these, dead trees are the most obvious. If dead trees are not removed quickly, they become more risk prone and more expensive to remove. As they decay, they become unreliable and unsafe to climb for easy removal. Dead limbs are also a source of above ground failures.

But, many trees fail before they die. Structural defects include double leaders (two stems) and weak branch unions. It is best to prune out double leaders when trees are young to prevent future hazards. Weak branch unions may have a

notch on the underside of the branch rather than a healthy rounded collar. Instead of a healthy branch ridge where the upper surface joins the tree trunk, branches with weak unions are often inrolled. Individual branch weight can be a factor in above ground failures.

Unbalanced crowns, usually due to competition, are not defects in themselves but will compound a defect. Directional pruning to keep trees away from overhead wires can result in an unbalanced crown. Proper plant selection--choosing small trees under overhead wires, will avoid this situation completely. A leaning tree is not defective, but when compounded with a defect has a greater likelihood of failure.

Trunk cracks and limb cracks are signs of internal decay. When the crack becomes open to weather, it dries out and dry wood is more likely to break. The first step in decay evaluation is detection. Professionals start with a careful appraisal of signs and symptoms. Cracks, visible holes, wood fungi and unusual structure, caused by regrowth from a break are all signs or symptoms of decay.

Since trees have the ability to compartmentalize decay, the decay may be confined to a small area. To measure the size of the decay column, professionals drill through the stem with a thin bit, record when the resistance changes and determine the width of the sound wood. Formulas have been devised to quantify the strength loss due to decay by inputting the width of sound wood, cavity opening and size of decay column. Data from past tree failures has been compiled to indicate how much strength loss is too much.

Once the professional determines the strength loss in a tree, he or she must factor in the species, crown size, current growth rate, potential targets and exposure or use of the area below the tree.

Root failures, since they occur underground, are much harder to diagnose. Root failures may be caused by root defects or soil failures. To diagnose root defects, professionals look for decay at the base of the tree. Missing roots, abnormal trees flares, fungal fruiting structures and soil fill around the tree base are signs and symptoms of root defects. If the tree enters the soil like a telephone pole, the professional will dig away the surrounding soil to see why the normal flare is missing. Root decay usually starts at the end of a root and moves back toward the tree trunk. If one-third to one-half of the root system is decayed or missing, the tree is usually considered hazardous.

Soil failures can also cause a tree to fall. When the soil is very moist or very shallow or simply gives way, a tree may come down. Soil failures are hard to predict, but some sites are more susceptible than others. Open areas with high winds, construction sites where root loss has occurred, or large-crowned trees that act as sails are all prone to loss by soil failure. When dense stands of trees are thinned, some trees once supported by their neighbors can no longer support their own crown weight.

So, managing tree risk begins with a visual assessment. Look first at site characteristics, such as exposure to wind, recent construction, soil characteristics and available root space. Experienced arborists are qualified to perform a visual tree assessment in which they will recognize defects, factor in tree species, assess wood and root decay patterns and consider soil characteristics. Each tree species has its own failure profile based on individual arborists' experience and a database compiled by California tree failure reports.

To manage tree populations in a park, estate, corporate campus or any other wooded area, assign responsibility for the task to a person or department in the operation. Then write an

inspection policy, provide standardized documentation forms and establish tree hazard criteria. Tree managers should conduct frequent inspections and carefully document tree health and site conditions on standardized forms. Then maintain a schedule for remedial treatments and removal. To prioritize treatments and removals for people with budgetary responsibility, factor in the severity of the defect(s), size of the plant part, plant value and target characteristics. A simple system assigns values to these components:

failure potential:

- 1 - minor defect
- 2 - moderate defect
- 3 - significant defect

size of plant part:

- 1 - small limb
- 2 - medium limb
- 3 - whole tree

target:

- 1 - low use
- 2 - moderate use
- 3 - high use

The addition of these three factors will result in ratings between three and nine. Simply do the nines first and continue until allotted funds are exhausted. To decide whether a remedial treatment or removal is preferable, factor in the ability of the treatment to significantly reduce risk and the cost of the treatment. Sometimes it is just not worth saving a risky tree. The sooner a new tree is planted to fulfill the design and functional requirements the better.

## CONTROL BLACK VINE WEEVIL IN CONTAINER STOCK

Stanton Gill

Maryland Cooperative Extension

With the help of the beneficial nematode *Heterorhabditis bacteriospora*, the leaf notching black vine weevil, can be controlled biologically. First, a quick review of how entomopathogenic nematodes work.

Entomopathogenic nematodes infect only insects or related arthropods. The nematodes kill insects by entering through a body opening such as the insects' mouth, spiracles or anus and releasing an insect killing bacterium. Only the 3rd instar juvenile of this nematode is capable of entering insects. If the environment is warm (50-85°F) and moist, these nematodes complete their life cycle within the infected insect.

Insects that have life stages in soil are ideal sites for using entomopathogenic nematodes since survival in moist soil is high. Insects such as notching weevil larvae are potential candidates for biological control using entomopathogenic nematodes. Once the nematode is inside, the insect releases *Xenorhabdis* bacteria and the insect dies of bacterial septicemia in 24-48 hours.

Two trade names of the product are **Larvanem** and **Lawn Patrol**. **Larvanem** is produced by the Koppert Company of the Netherlands and sold by insectories in North America. The second Trade name is **Lawn Patrol**, distributed by Hydro-Gardens, 765 Vollmer Road, Colorado Springs, CO 80932.

When damage of vine weevil larvae is observed, the nematodes should be introduced as soon as possible. One package of **Larvanem** contains 50 million nematodes and is sufficient for 100 square meters of soil. One package of **Lawn Patrol** containing 1 million nematodes is recommended to be applied to 3,000 sq. ft. of area. Water the nematodes in thoroughly. The

soil temperature must be above 50°F and below 90°F.

The nematodes are supplied as infectious third stage larvae, together with inert carrying material, in a 250 ml package or suspended on a sponge. For the preparation of the spraying liquid, put the contents of the package in a bucket containing 5 liters of water (15° to 20° C). For the **Larvanem**, stir to break up any lumps and let the entire solution soak for 5 minutes. To separate the lumps and the nematodes, stir well and leave it for 20 to 30 seconds. Then carefully pour the nematodes into a second bucket. The majority of the carrying material remains in the first bucket. If you are using **Lawn Patrol**, the sponge containing the nematodes is placed in water, stirring slightly for 3-5 minutes until the nematodes are released into the water. Transfer the contents of the second bucket into a larger barrel if necessary, and fill it up until the required amount of spraying liquid is reached. Immediately use the spraying liquid. If you leave the nematodes sitting in water they will die from the lack of aeration.

Apply with a watering-can, the irrigation system, knapsack or motorized sprayer. Use under 300 psi pressure. To avoid blockage, remove all sieves. Set the spray nozzle opening at a minimum of ½ mm (500 microns). Evenly spread the spraying solution over the ground area to be treated. Continuously mix to prevent the nematodes from sinking to the bottom. Sprinkle the crop with water before and after the application. Keep the soil moist during the first two weeks after application.

In trials conducted from 1992-1995, entomopathogenic nematodes have proven to be very effective in controlling the larvae of black vine weevil.

Excerpted from *Free State Nursery News*, November 1996.

**MISCANTHUS MEALYBUG,**  
***Miscanthicoccus miscanthi* (Takahaski)**  
**James F. Stimmel**  
**Pennsylvania Dept. of Agriculture**

Ornamental grasses are gaining popularity in landscape plantings largely because their feathery texture, interesting coloration, and easy maintenance make them desirable for use in ornamental situations. In addition, these fast-growing plants have relatively few pests. Grasses of the genus *Miscanthus*, however, may be attacked by an introduced mealybug, *Miscanthicoccus miscanthi*, which can affect the plant's vigor and appearance.

**Hosts and distribution:** The genus *Miscanthus*, commonly known as eulalia, appears to be the sole host of this mealybug. This native of the Orient was first detected in the United States in Virginia in the late 1980s. It has since spread to California, Delaware, Maryland, and Pennsylvania, and probably occurs in other northeastern states as well. In Pennsylvania it has been found in the extreme southeastern counties, plus Centre County. It probably exists in a broader range than this but hasn't been detected because of its secretive habits and subtle damage characteristics.

**Identification:** *Miscanthus* mealybugs live in the spaces between uncurled leaf sheaths along the stems of the host, where they have adapted to life in tight quarters. They are small, soft-bodied, oval insects about 1/8 inch long and are covered with white, powdery wax. Unlike most other mealybugs, they do not produce wax rods from the body margin - these would be detrimental in their cramped environment.

The males are tiny and not much larger than newly hatched crawlers. They are wingless and

well-suited for moving about in the crowded colonies.

Usually, however, the actual mealybugs are not seen. More often their presence is indicated by powdery and filamentous white wax exuding from crowded colonies as the leaves unfold on maturing plants.

**Life History:** This species has three generations per year in Pennsylvania. Fertilized adult females overwinter in protected areas of the plant, usually in the crown. These females are large, bloated, and do not really appear insect-like because their tiny legs and antennae are barely visible. The young, or crawlers, begin to appear about the third week of May. Females probably give birth to live young rather than lay eggs, and a female may produce hundreds of young. The flattened crawlers do not move far from the parent, and they often squeeze into spaces too small for a mature mealybug to occupy. Here they settle and feed until maturity, about three or four weeks. Second-generation crawlers begin to appear in mid-July; third generation, in early September.

If you expose a colony of mealybugs, you will see that their living quarters are packed with white, waxy matter and a gummy, syrupy liquid. The liquid is honeydew, a waste product produced by many sucking insects. Droplets of honeydew are coated with powdery wax to keep them from spreading over the colony and suffocating it. In time, the honeydew droplets seem to condense and become more viscous, probably due to evaporation of water.

*Miscanthicoccus miscanthi* does not disperse long distances - in fact, it rarely spreads beyond the immediate host community. Isolated colonies can exist in areas where plants are separated by only a few feet. It undoubtedly increases its range by hitchhiking on infested plant material, and division and movement of

infested crowns is probably responsible for its current distribution.

**Damage:** Consider the *Miscanthus* mealybug only a minor pest, as it does not appear to kill its host. *Miscanthus* grasses grow vigorously and appear to outgrow the mealybug colonies. Severe infestations, however, tend to keep plants from attaining full height. Stems may become unattractive from the presence of the telltale white wax produced by large colonies and plant tissue turns red where the mealybugs feed.

**Management Options:** Because it lives in confined, protected areas, this insect cannot be controlled with topical sprays - the sprays simply can't reach their targets. Other methods have been tried, such as burning the dead grass tops in early spring, and even scorching the crowns with a propane torch. Neither of these methods works because many of the mealybugs overwinter in the crowns near the soil line, where it is impossible to apply sufficient heat without killing the plant.

Probably the best way to live with this pest is to cut the plant tops off just before dormancy to remove as much of the mealybug population as possible. The insects will get off to a slow start the following season, and give the hosts a chance to outdistance the pests. Proper cultural management - water and fertilizer - will help keep host plants vigorous.

Reprinted from *Regulatory Horticulture*,  
Entomology circular 10. 182, Fall 1996.

## LANDSCAPING TRENDS FOR 1997

If gardens are an extension of the owner's personality, the coming year should be an exciting one. Homeowners are increasingly sophisticated in their landscaping choices.

The American Association of Nurserymen (AAN) highlights some trends to look for in 1997.

**Going Native.** Use of native plants (or hybrid varieties of natives) is increasing. Some natives require fewer pesticides and less water. Landscape professionals, because of their sensitivity to the environment, are driving this trend.

**Continuous Bloom.** Gardeners want something attractive in their yard all year. Growers are meeting this demand with ornamental grasses, colorful berrying plants, and trees and shrubs with interesting bark or seed heads.

**Outdoor Rooms.** People are discovering the joys of dining, relaxing and entertaining in spaces landscaped especially for these purposes. A trellis or tree canopy becomes a ceiling, arbors or shrubs serve as privacy walls, and pavers or ground covers suggest a floor.

**Entry Spaces.** Another landscaping method for connecting the home and landscape is an inviting entry space. Instead of foundation plantings, an outdoor foyer is established. Creating an entry might be as simple as placing a large pot of flowers and a bench near the front door. Moving the landscape out from the house allows plants to mature in their natural form, rather than pruning them into submission every year. Dimension and interest are heightened because the landscape isn't viewed all at once.

**Water Gardens.** This cool trend is still hot among homeowners. Now, however, even

apartment dwellers are getting into the act with smaller counterparts on decks and patios. Watery retreats are limited only by imagination. One landscape professional created a relaxing garden in a pot two feet high. Fish, snails and oxygenating plants were included in this deck-top attraction.

**Creative Container Gardening.** The one-plant-per-pot scheme is declining. Now, several varieties are grouped dramatically in a single container. Contrasting textures and complementary colors of different plants are massed together. Ideas include salad garden pots containing different lettuces and a tea garden containers of herbs.

**Heirloom Gardens.** Everything old is new again, as antique roses and “grandmas’ gardens” gain favor. Gardeners are rediscovering the honorable qualities of heirloom varieties-hardiness, disease resistance, subtle fragrance and color.

**Gardening for Wildlife** (especially butterflies) is still prevalent. Flower beds nicely define the new grassy islands and create a more interesting view than the traditional, static landscape.

Article provided by the American Association of Nurserymen 1996-97.

## **SPRING IS A VERY IMPORTANT THING!** **Alistair Lorimer** **Malcolm Scott Consultants**

In our work with garden centers, we frequently work with businesses producing a detailed Action Plan for the forthcoming Spring season. The plans we produce would be too long to put into a single article, but some quick, actionable and low cost methods are worth repeating time and again. Here are some examples:

### **Set some targets for you and your staff.**

#### 1. *Sales Targets*

- List out by month last year’s sales by department.
- Allocate a target for each month this year.
- Work out the ratio of Monday to Friday sales compared with Saturday and Sunday sales and use this to set daily targets for each day - this really makes it look achievable and focuses the staff on the importance of day to day sales.

#### 2. *Customer Spend Targets*

- List out for each month last year the customer spend figures and set targets for each month this year. When you have targets, brainstorm them with the staff. What action can we take to reach these targets?

### **Improve your gross margin**

In the simplest way possible - put your prices up! Review the prices of every product and look for small increases. Remember that for a \$1 million sales garden center, a 3 cent on the dollar increase in price across the board equates to \$30,000 straight to the bottom line! We recently carried out this exercise for a center and achieved a 70% rise in gross margin over 2 years without one customer comment!

## **Cut your wastage**

By improving quality at source - have a drive to send back any plant stock that is not up to scratch - this keeps your suppliers on their toes, increases inventory turn and reduces wastage.

## **Increase sales**

### *1. Improve product signage - use your computer to:*

- Show plant combinations “Looks great when grown with...” Highlight special offers and good value.
- Create multi-buys “\$1 each - 4 for \$3”.
- Create job lists “To plant this shrub you will need...”
- Draw attention to other sales areas “Don’t forget to visit our aquatics area”.

### *2. Promote pick-up lines*

For example: string, gloves, houseplants, fertilizers, leaf shine, etc.

This can be done firstly by placing them in areas where they will be seen, such as checkouts, entrances and exits to and from retail areas. They can also be promoted through signage placed at strategic points to remind customers, for example: on the sides of shopping carts, adjacent to relevant products, close to checkouts, on badges worn by staff members, hung up in the rest rooms!

### *3. Improve sales from your checkout area*

This is the one area most of your customers will visit. Merchandising this area with last minute impulse products is important. In addition, don’t forget to promote the gift tokens that may be hidden away in your checkouts. In-house gift tokens can be one of your most profitable lines after they have been lost, put through the

washing machines or eaten by the dog and not redeemed. Finally, always give your customers a reason to return in the near future through signage and staff communication.

## **Clear your parking lots**

This is for those centers that are short of parking spaces in the Spring season. A good exercise is to divide your annual sales by your total number of car parking spaces to give a value to each space. This is always an incentive to clear away those last pallets of compost and stoneware and those plants to be returned to suppliers. At a recent garden center, we worked out that each parking space was worth \$68,000 and as a result of this we managed to create a further five by tidying up!

Remember - Spring is a very important thing! It is always a useful exercise to focus on the little things that put the shine on your profits.

Reprinted from Pennsylvania Landscape and Nursery Association, Winter 1997.

**POND PLANNING FOR SUCCESS**  
**Peg Castorani**  
**Gateway Garden Center**

At Gateway Garden Center, we receive many calls from homeowners who are unable to maintain a water garden that was expected to add a beautiful and carefree focal point to their landscape. The most persistent complaints are "My fish are dying!" and "My pond water is too green!" Upon arriving at the site, we discover that most of these problem ponds have design features that were not well-planned and constructed, resulting in water quality problems. The disgruntled homeowner fails to become a loyal customer to the firm that installed the pond and occasionally attempts to have the firm solve the problems in a costly way. Here are some suggestions for installing ponds that will delight your customers and guarantee you more water garden business.

**Location:** Siting considerations that are carefully thought out and executed are also the most successful. Never allow a homeowner to talk you into constructing a pond in a natural run-off area or any other spot that naturally holds water! Never site the pond in a low spot in the landscape; it will collect run-off from adjacent areas. Slightly elevate the pond edge to discourage light water run-off from entering the pond. Gently slope the surrounding soil away from the pond edge. This will insure that water will not seep under the liner and lift it. Lawn chemicals of any type spell disaster for the pond environment. French drains and retaining walls may be installed in order to adapt a difficult site. If you chose to install a pond on a hillside, build a low retaining wall at ground level. Your client can sit on the wall and feed the fish that will nibble right from their fingertips. Site the pond in full sun, and away from deciduous trees. Your client will sing your praises as he shows off the fabulous blossoms on his water lilies-the majority of which require full sun! Consider the

placement of the pond from inside your client's home. They will really appreciate the beauty of the pond in winter.

**Construction:** If you are in doubt about any aspect of pond construction, consult an experienced firm and pick up some good reference materials. Check with local building codes to establish the proper procedures and insure your customer's compliance. Have a licensed electrician do your electrical work and place the outlet on the opposite side of the pond from the waterfall if practical. Here are a few basic tips that will contribute to your success.

Always allow plenty of materials for cushioning the pond liner and edging the pond. Preformed liners may crack as a result of winter freezes if not adequately protected from heaving soil. Use 3" of sand under a preformed pond and back fill the sides if possible. This sand will also be useful in leveling the pond. Be prepared to fill and empty the preformed pond several times to establish a perfect level at the top of the pond when it is full. Liner ponds built with fish safe rubber or vinyl may be slightly uneven in the floor and still perfectly level at the water surface. Consider setting the stone used to edge the pond in a mortar base or embed in concrete. This will stabilize the pond edges. Your clients' small children and large pets do not need to be tottering on rocks that may tumble into the pond with them. A more stable arrangement is to build a shallow shelf that will accommodate 3 or 4 courses of flat stone with the liner underneath and behind it. Construct the floor of the pond in a series of flat levels with walls that approach a 90 degree angle. Never install sloping sides that create a bowl shaped pond. Allow for a marginal plant shelf if the pond size permits. A 12" wide shelf that is 10" below the water surface will accommodate generously-sized marginal plants that will not blow over easily. (Another homeowners nightmare). If raccoons are living near the pond, dispense with a plant

shelf which acts as a stairway to the fish for a raccoon! At the pond's viewing edge, an 18" deep area will site water lilies where they can be easily fertilized and pruned. Create a floor area that is 24" deep (under the waterfall if one is included) for the fish and plants to overwinter. Remember you want to get the maximum water volume possible for the surface area available. This will keep the water clear as well as allow for the maximum number of fish. Fish just seem to magically reach that maximum load in just a few seasons.

Plan your waterfalls and water courses with extra care. Water courses evaporate a lot of water when it is hot. Ninety percent of water loss problems in ponds are a result of poor waterfall construction. I recommend building a series of small ponds that cascade one into the other. This will increase your water volume and decrease the growth of filamentous algae that thrives in shallow stream-like conditions. Locate the waterfall at one end of the pond and provide a still area for the waterlilies at the opposite end. Waterlilies will decline if subject to turbulent water and thrive in still conditions. Cut waterfall liners generously and pad thoroughly. The liner will be supporting heavy rocks. Consider placing a large flat stone on the floor of the pond under a strong waterfall to protect the liner.

**Keeping the water clean:** Green water is the most common complaint of the novice pondkeeper. Proper siting, construction techniques and stocking levels all contribute to sparkling clear pond water. Please advise your client on the filtration options available before building begins. Our customers generally prefer to install an out-of-the-pond biological filter if the site allows. Always provide them with a mechanical filtration system to remove debris from the pond and keep the intake of the pump housing clean. Mechanical filters need regular cleaning. This can mean daily, weekly or

monthly depending on the water quality. We have great success with high quality foam that never clogs. Another option is to use a pump that passes solids through a mechanical or vortex filter before the water enters into a biological filter. Biological filter units create a home for beneficial bacteria. These bacteria convert harmful ammonia from fish wastes into useful nitrates that enhance plant growth. An alternative concept is to flush the pond water through the roots of selected marginal plants. We stock containers that are suitable for holding lava rock and plant materials in a tub that is built with a spillway. Install this spillway at the top of the waterfall, fill it with plants and your client will have only an annual maintenance chore - and clear water! A pond skimmer is invaluable in a shaded area and mandatory if you chose to install pebbles on the pond floor. Without a pond skimmer, debris will collect in the pebble base. After cleaning out even a few ponds, you will realize that lots of muck accumulates in the bottom of a pond over time and is a lot of work to remove.

Our goal at Gateway is to provide knowledgeable sales and service to homeowners, designers and contractors. Your customers and ours, expect the addition of a water garden to create a sense of serenity and beauty in the landscape. We work hard to meet these expectations and develop long term relationships with our clients based on trust. This can be a big investment of our time and energy. We believe that investment will ensure Gateway's success in the present and future.

## PESTICIDE NEWS

### EPA Grants Rose Growers Two-Year Exception to WPS

Effective Dec. 18, EPA has granted a two-year exception that allows workers to hand-harvest, before the restricted entry intervals have expired, pesticide-treated roses grown in greenhouses. The Agency believes that early entry under the terms of the exception will not pose unreasonable risks to rose workers. Risks will be mitigated by the limited time harvesters are allowed in the treated area, the use of personal protective equipment, accessible decontamination facilities, the provision of label-specific information for harvesters, and the basic safety information that employers must present to workers.(EPA)

#### **Insecticides:**

AVID (avermectin) - Merck & Co., - Added to label the usages on the ornamentals: aucuba, cotoneaster, Japanese pittosposum and junipers as a result of the IR-4 Project.

AZADIRACTIN - Thermo Trilogly - As a result of the IR-4 Project, uses added to their label are non-bearing citrus and ornamental cabbage.

CITATION (cypromazine) - Ciba - Due to the IR-4 Project, the usage on snapdragons can be added to the label.

DIAZINON - Ciba - As a result of the IR-4 Project, the following ornamentals can be added to the label; balsam, gazania, marigold, poinsettia, scarlet sage, vervain and wax vine.

DURSBAN (chlorpyrifos) - Dow Elanco - As a result of the IR-4 Project, the usage on lobelia can be added to the label.

FURADAN (carbofuran) - As a result of the IR-4 Project, the usage on pines can be added to the label.

HEXYGON (hexythiazox) - Gowan - As a result of the IR-4 Project, the following ornamentals can be added to the label - arborvitae, crabapple, forsythia, honey locust, Japanese spruce, maple, oak, purpleleaf winter creeper, spruce and yew.

PFR-97 (*Palcelomyces fumosoroseus*) - Thermo Trilogly - This is a new biological insecticide being developed for usage in greenhouses to control mites and whiteflies.

PROVADO (imidacloprid) - Bayer - Added to their label the usage on apples, crabapples, loquat, mayhaws, pears and quince.

RESMETHRIN - Agr Evo - As a result of the IR-4 Project, the usage on periwinkle can be added to their label.

CONSERVE (spinosad) - Dow Elanco - Registration is expected in early 1997 for control of various insects on turf and ornamentals.

DAZA (dihydroazadirachtin) - Agridyne - EPA received an application to register this new active ingredient for indoor and outdoor use on ornamentals, turf, agronomic and horticultural crops.

CO STAR (*B.t.*) - Sandoz - A new high potency *B.t.* insecticide recently introduced for usage on ornamentals.

M-PRESS (*B.t. var japonensis* strain *bui bui*) - Mycogen - received EPA registration to control adults and larvae of soil-dwelling beetles in turfgrass, landscapes and ornamentals.

TOPSIDE O/S (lambda -cyhalothrin) - Uniroyal - The company has decided to market this product for usage in outdoor nurseries only. Greenhouse and shadehouse usages have been deleted from the label.

### **Fungicides:**

ARMICARB (potassium bicarbonate) - Dwight & Church - This is a new product being developed to control powdery mildew in ornamentals. It should be available in early '97.

BANNER (propiconazole) - Ciba - Due to IR-4, usage on snapdragon may be added to the label.

BRAVO (chlorothalonil) - ISK BioScience - Due to IR-4, usage on ferns, lilac, magnolia and maple may be added to the label.

CANDIT (kresoxim-methyl) - BASF - A new broad spectrum fungicide is being developed for use on fruit trees, grapes, cereals, vegetables, ornamentals, and other crops.

EAGLE (myclobutanil) - Rohm & Haas - Due to IR-4 Project, usage on hydrangea may be added to the label.

FERBAM - UCB chemicals - Due to IR-4 Project, usage on Betal palm and non-bearing cherries may be added to the label.

KOCIDE (copper hydroxide) - Griffin - Due to IR-4 Project, usage on 28 additional ornamentals may be added to the label.

RUBIGAN (fenarimol) - Dow Elanco - Due to IR-4 Project, usage on sweet peas may be added to the label.

THIRAM - UCB Chemicals - Due to high cost of re-registration. The company will delete usage on homeowner turf (commercial turf will remain).

BAYLETON 50% (triadimefon) - Bayer - Added to their label the control of needle cast on conifers grown for Christmas trees.

*Trichoderma harzianum* - Bio Works - A number of new bio fungicide formulations from this active ingredient available soon. Bio Trek 22G for use on turf and ornamentals, Root Shield - greenhouse crops, Top Shield - fruit and ornamentals and Garden Flourish - for home use. Diseases controlled include Fusarium spp. Pythium spp, Rhizoctonia spp and Sclerotina.

FUNGINEX (triforine) - American Cyanamid - Due to high cost of re-registration, they will delete from their label all greenhouse uses.

SIGNATURE (fosetyl-A1) - Rhone Poulenc - Received registration to use on turf to control yellow tuft and root rots.

### **Herbicides:**

COOL POWER (MCPA/triclopyr/dicamba) - Riverdale - A new combination herbicide developed for usage on turf. An ester formulation.

HORSEPOWER (MCPA/triclopyr/dicamba) - Riverdale - A new combination herbicide developed for usage on turf. An amine formulation.

MILLENNIUM (2,4,-D/triclopyr/clopyralid) - Riverdale - A new combination herbicide developed for usage on turf.

PENDULUM 2G (pendimethalin) - American Cyanamid - A new formulation being developed for usage on turf, ornamentals and non crop areas.

DACTHAL (DCPA) - ISK Biosciences - Due to the IR-4 Project, the usage on ageratum,

marigold, mossrose and spruce may be added to the label.

GALLERY (isoxaben) - Dow Elanco - Due to the IR-4 Project, the usage on Kentucky bluegrass may be added to their label.

PENNANT (metalachlor) - Ciba - Due to the IR-4 Project, the usage on columbine, gaillardia and tickseed may be added to the label.

ROUNDUP (glyphosate) - Monsanto - Due to the IR-4 Project, the usage on Kentucky bluegrass and spruce may be added to the label.

SNAPSHOT (isoxaben/oryzalin) - Dow Elanco - Due to the IR-4 Project, the usage on creeping lilyturf and magnolia can be added to the label.

SURFLAN (oxyzalin) - Dow Elanco - Due to the IR-4 Project, the usage on 13 additional new ornamentals may be added to the label.

TREFLAN (trifluralin) - Dow Elanco - Due to the IR-4 Project, the usage on 42 new ornamentals may be added to the granular formulation label.

XL (benefin/oxyzalin) - Dow Elanco - Due to IR-4 Project, usage on algerian ivy, liriopse and pampas grass may be added to the label.

#### **Miscellaneous:**

B-NINE SP (daminozide) - Uniroyal - Added several new species of ornamentals and added usage on bedding plant plugs. Also updated directions for use on pot mums and poinsettias.

CYCOCEL (chlormequat) - Olympic Hort - EPA expanded use to all greenhouse crops except vegetables.

## **RESEARCH BRIEFS**

### **Field Production:**

**Weed control in herbaceous perennials.** Good weed control in field-grown herbaceous perennials was provided by wood chip mulch, Rout GS, Snapshot 80 DF and Gallery 75 WDG tank mixed with Surflan 4 AS. Snapshot, Gallery and Surflan together provided the best control. There was a prevalence of warm season weeds in rubber tire chip mulch. Herbicide tolerance varied among species and cultivars but was relatively high overall, except for *Hemerocallis* 'After Dark' and *Phlox maculata* 'Omega'. Apply preemergents in the fall to reduce injury to succulent tender growth. The least toxic herbicides were Balan 2.5G and Stomp 60 WDG. Snapshot 80 DF provided the best control (of any single herbicide) regardless of when it was applied. Stomp 3.3 EC should be applied as a preemergent. Ronstar 2G, Surflan 4 AS, Pennant 5G and Gallery 75 WDG plus Surflan 4 AS should be applied post emergence. J.B. Calkins, S.T. Swanson and D.C. Newnan. (*J. Environ. Hort.* 14(4), Dec. 1996)

**Preemergent herbicides effects on nursery crop growth.** Ronstar and OH II caused no reduction in root or shoot growth of azaleas, abelia or photinia. Gallery, Surflan and Factor decreased root and shoot weight of certain nursery crops at some harvests. Nursery crops may have great tolerance to herbicides as they increase in size. J.F. Derr and S. Salihu. (*J. Environ. Hort.* 14(4), Dec. 1996)

**Tilling in the dark to control weeds.** Studies in Minnesota have shown the nighttime tilling reduced weed emergence of six species of small-seeded broadleaf weeds. Annual grass species and large-seeded broadleaf weeds were unaffected by nighttime tillage. Tilling in the dark seems to be a promising component of integrated weed management for some weed

species, but total darkness is required. Tractor lights provide more than enough light to allow dormant weed seed to become active. For daytime tilling, it may be possible to design equipment that excludes light from the soil. D.D. Buhler and K.A. Kohler. (*American Nurseryman*, December 1, 1996)

**Methyl iodide shows promise as an alternative to methyl bromide.** Studies at the University of California, Riverside, show that methyl iodide is an effective fumigant for the pests tested. In most cases, this chemical performed equal to or better than methyl bromide. Methyl iodide seems to have the wide-spectrum effectiveness that will help it serve as a single chemical replacement for methyl bromide. Methyl iodide decomposes before it reaches the ozone layer, thus making it safer to the environment. Because methyl iodide is a liquid, it would be safer to apply than methyl bromide, which is a gas. J.J. Sims, H.D. Ohr, N.M. Grech, J. O. Becker and M.E. McGiffen, Jr. (*American Nurseryman*, March 1, 1997)

### **Container Production:**

**Herbaceous perennial cold hardiness.** Aquilegia, Dianthus and Lavandula were marketable six weeks after freezing roots to 12 F and should be grouped to provide this level of protection from cold. L.P. Perry and T. Herrick. (*J. Environ. Hort.* 14(4), Dec. 1996)

**Temperature distribution in large, pot-in-pot (PIP) nursery containers.** Greatest protection from low temperature root damage occurred with hoop houses covered with white copolymer plastic film. The PIP system adequately buffered root-zone temperatures in South Carolina. For regions where ambient outdoor temperatures do not exceed the range between 14 to 105 F, the PIP system provides adequate root-zone temperature protection for 15 liter plastic nursery containers without covering structures. R.E.

Young and G.R. Bachman. (*J. Environ. Hort.* 14(4), Dec. 1996)

**Spent mushroom compost as a container substrate.** Studies conducted in Canada compared growth of four deciduous shrubs in bark-based media and peat-based media, amended with spent mushroom compost and sand. Growth of all species was 20 percent greater in peat-based than in bark-based compost mixes. Mixes containing 25 percent or 50 percent spent mushroom compost promoted excellent growth of all four container-grown deciduous species. The key to successfully using spent mushroom compost, is managing salt levels in potting mixes. Watering is especially critical to leach potentially toxic salts from the compost. Until salt levels are lowered, it is important that the mixes never be allowed to dry out. C. Chong and S. Hamersma. (*American Nurseryman*, December 1, 1996)

**Low temperature survival of perennials.** In a study with five herbaceous perennial species most species survived when exposed to 14F, but damage increased as temperatures dropped below 14F. Growers producing perennials in containers should provide winter protection to prevent root media temperatures from falling below 14F. (*GrowerTalks*, January 1997)

**Mum production in copper-impregnated fiber containers.** Vegetative growth and flowering of three garden chrysanthemum varieties produced in copper-impregnated fiber containers increased of those same varieties grown in black plastic containers. Increased growth may be explained by improved substrate aeration, lower substrate temperatures and possibly root pruning from the Cu lining. Copper treatments extend the life of fiber pots to 2 years. Without the copper treatment, fiber pots degrade too quickly for practical use in the hot, humid South. J.M. Rutter. (*J. Environ. Hort.* 14(4), Dec. 1996)

**Cyclic irrigation.** Dividing daily water allotments into two applications with one hour between each application maximized efficiency when 1.2” of water was applied to a #1 container. Two one-hour rest periods were required between applications to minimize NH<sub>4</sub>-N losses. To reduce leaching losses of mobile anions such as NO<sub>3</sub> and P, there must be a reduction in irrigation volume. H.H. Tyler, S.L. Warren and T.E. Bilderback. (*J. Environ. Hort.* 14(4), Dec. 1996)

### **Greenhouse Production:**

**Sphagnum peat and coir dust-based substrates for bedding plant production.** Coir dust is produced from the husk of the coconut fruit and mixed with perlite. Growth of annuals in this study (marigold, geranium, petunia) were either equivalent to or greater than those produced in peat-based substrates. M.R. Evans and R.H. Stamps. (*J. Environ. Hort.* 14(4), Dec. 1996)

**Reducing bract necrosis on poinsettia.** Silica sprays (Na<sub>2</sub>SiO<sub>3</sub> or SiO<sub>2</sub> x nH<sub>2</sub>O) markedly reduced the incidence and severity of bract necrosis (which is thought to be a calcium deficiency disorder). Sprays of 3.56, 5.34 and 7.12 mM Na<sub>2</sub>SiO<sub>3</sub> were as effective as 9.98 mM CaCl<sub>2</sub>. R.J. McAvoy and B.B. Bible. (*HortScience* 31(7) 1996)

**Flowering of *Lavandula angustifolia*.** The following conditions are best for bringing *Lavandula angustifolia* ‘Munstead’ to flower for commercial production. Use initial plant material with more than 11 nodes. Provide a minimum of 10 weeks of 5C cold treatment. Force under a 4 hour night interruption (flower count increased slightly). Cooled plants with 18-23 nodes, forced under night interruption will flower in approximately 7 weeks at 20C. C.M. Whitman, R.D. Heins, A.C. Cameron and W.H. Carlson. (*HortScience* 31(7), 1996)

**Flowering of *Oxalis x denophylla* and *Ipheion uniflorum*.** This rhizome and bulb have highly desirable characteristics for pot plant culture. For the most efficient production of salable plants, provide 10-14 weeks of 5C in either wet or dry conditions. Wet storage will result in more rapid foliar emergence and flowering. A.M. Armitage, L. Copeland, P. Gross and M. Green. (*HortScience* 31(7), 1996)

**Seed Germination of *Lupinus perennis*.** Native to the eastern US, this perennial grows on dry open edges or sandy savanas and shrubby woodlands. Seed germination research was undertaken to help restore *Lupinus perennis* to its native habitat. Acid scarification for 30 minutes at 75-85F improved germination and confirmed that an impervious seed coat serves as a limitation to germination. W.A. MacKay, T.D. Davis, D. Sankhla, D.E. Riemenschneider. (*J. Environ. Hort.* 14(4), Dec. 1996)

### **Landscape Installation & Management:**

**Weed control in herbaceous perennials.** In a study with 12 field-grown herbaceous perennials, Rout GS, Snapshot 80 DF and the combination of Gallery 75 WDG and Surflan 4 AS provided the best overall weed control. No single herbicide appears to be acceptable for use on all herbaceous perennial species. Phlox maculata ‘Omega’ was quite sensitive to herbicides and can be used as a phytotoxicity gauge. If this cultivar is not injured by a particular herbicide, chances are other herbaceous perennials won’t be. These researchers suggest making herbicide applications in the fall, when plants are dormant, since applying herbicides at the right time in spring is difficult. J.B. Calkins, B.T. Swanson and D.L. Newman. (*American Nurseryman*, December 15, 1996)

**Fall transplanting of fringe tree.** A distinct advantage was found with fall or late fall

transplanting of fringe tree. Trees transplanted on March 14 had less total leaf area, leaf dry mass and lower maximum root extension into backfill soil than trees transplanted on November 11 or December 1. No root growth beyond the original ball occurred until about early July (one month after bud set). Therefore, first season post-transplant irrigation regimes need to focus on rootballs and not the surrounding soil areas. J. R. Harris, P. Knight and J. Fanelli. (*HortScience* 31(7) 1996)

**Disease in Perennial Ryegrass Turf.** Nitrogen applied at 240 kg/ha/yr resulted in less dollar spot but worse infections of brown patch in perennial ryegrass. Clipping left on the surface resulted in suppression of dollar spot but enhanced brown patch. J.H. Dunn, D.D. Minner, B.F. Fresenburg, S.S. Bughrara. (*HortScience* 31(7), 1996)

**Establishment of the VA Tech Transplanted Meadow(VTTM).** A seeding rate of 56 g/90m<sup>2</sup> can be used to reduce the cost of the VTTM technique. Plug spacing of 30 inches was better at first but by 8 weeks, there was no difference in canopy coverage even with 60 cm between rows. Plant competition does not provide satisfactory weed control. The pre-emergent herbicide oryzalin provided excellent weed control but some species suffered and the speed of establishment decreased. Mulch provided excellent weed control and enhanced plant growth. R.L. Harkess and R.E. Lyons. (*HortTechnology* 7(11), Jan-Mar 1997)

**Growth response of large shrubs to growth regulators.** Cutless is marginally effective for controlling growth of large established landscape shrubs. Atrimmec, currently labeled for landscape maintenance was the more effective material. T.J. Banko and M.A. Stefani. (*J. Environ. Hort.* 14(4), Dec. 1996).

**Electric Insect Traps.** Delaware researchers found that electric insect traps do more harm than good. Only 31 insects out of nearly 14,000 counted were biting flies. Nearly half of the insects they counted were non-biting aquatic insects, and about 14% were beneficial insects that attack pests. They add that 71 to 350 billion nontarget insects are destroyed each year by these traps. Because so many predators and parasites are killed, we may actually be protecting mosquitoes and other pests. (*The Georgia Pest Management Newsletter*, November 1996; *Ent. News*, 107:77).

**Marketing:**

**Customer defections from garden centers.** A customer survey was used to discover the reasons for customer defection in 15 rural Georgia nurseries and garden centers.

| Reason for defection or nonuse                                       | % of responses |
|--|----------------|
| Does not offer green goods or hard goods that customer likes         | 47             |
| Product or service specification not met                             | 39             |
| Too expensive  | 23             |
| Employees either not knowledgeable or not customer-oriented          | 18             |
| Products or services in general do not appeal to potential customer  | 14             |
| Plants and green goods do not look healthy, high quality, maintained | 14             |
| Long lines at check out counter or service desk                      | 10             |
| Facilities or parking inadequate for environmental hort business     | 7              |
| Plants or products returned because satisfaction not realized        | 4              |

**Pest Control:**

Ten percent of those surveyed did not perceive a primary concern that lead to a defection, hence they “never thought about why they shop elsewhere.” F.E. Stegelin. (*Keeping Posted*, SNA Newsletter, November/December, 1996)

**Plug & Transplant, A Grower’s Guide**, by Roger C. Styer, Ph.D. and David A. Koranski, Ph.D. This is the first comprehensive book on how to produce plug seedlings. At 400 pages, this complete reference includes everything growers need to know about how to grow plugs and transplants from seed including how to select structures and the physical production setup, understanding seed physiology, and detailed explanations and checklists for each critical state of seedling growth. Three wall charts included with the book feature crop-by-crop growing information in summary form. To order contact: Ball Publishing (888)888-0013; Fax (888)888-0014. Outside the U.S./Canada, (630)208-9080; Fax (630)208-9350, e-mail: growertalk@aol.com or gtalks@xnet.com. Can also be ordered over the internet at Floriculture worldwide Network, <http://www.growertalks.com>.

**AAN TAX ALERT!** The Internal Revenue Service is disputing many business classifications of individuals as independent contractors. The determination of whether individuals are employees or independent contractors can have broad ramifications on taxes and workers’ compensation. In fact, the IRS now has 11,000 agents trained for reclassification audits. The American Association of Nurserymen (AAN) has a compact guide written for growers, garden center retailers and landscape professionals to determine whether an individual is an employee or independent contractor under IRS rules. AAN’s Guide to the use of Independent Contractors provides the test for determining correct IRS classification. the book is \$25 for AAN members and \$50 for non-AAN member. To order, contact AAN and request “AAN’s Guide to the Use of Independent Contractors” (202)789-2900 or fax: 202-789-1893

**April 7-8 and August 25-26** - 1997 Professional Course Schedule- Topic: Wetland Horticulture, Environmental Concern, Inc.(EC) - St. Michaels, MD. 8am - 5pm. Cost \$225. For more information please call (410)745-9620; fax: 410-745-3517.

**April 9** - Mid-Atlantic Interior Landscape Conference, "The Changing Interiorscape of the 90's," sponsored by Penn State Cooperative Extension, Mid-Atlantic Interior Landscape Committee. Location: Longwood Gardens, Rt. 1 Kennett Square, PA. Registration deadline, April 3, cost \$54.95. For questions contact: Thomas Contrisciano (610)378-1327.

**April 10** - PGMS Sessions at Winterthur - Topic: Biophenometer. Time: 10:30am, plan to meet a half hour before the scheduled meeting time in the Winterthur visitor's pavilion. To make reservations, please call: John Feliciani (302)888-4865.

**April 10,17,24** - The Dirt on Design: Garden Grit & Glory, Longwood Gardens Continuing Education Series. Location: Visitor Center Auditorium, 7-9 pm, Fee \$69. For a complete listing of Longwood Gardens Continuing Education Programs for Spring 1997, call:(610)388-1000, ext 516.

**April 14-18 and June 16-20** - 1997 Professional Course Schedule- Topic: Wetland Delineation, Environmental Concern, Inc. (EC) - St. Michaels, MD. 9am - 5pm. Cost \$775. For more information please call (410)745-9620; fax: 410-745-3517.

**April 18, 19** - Annual University of Delaware Botanic Gardens Plant Sale. Newark, DE. Contact Dot Milsom (302)831-2531.

**April 21** - 1997 Professional Course Schedule- Topic: Wetland Planting Techniques, Environmental Concern, Inc. (EC) - Patuxent NWVC, Laurel, MD. 9:30am - 5:30pm. Cost \$185. For more information please call (410)745-9620; fax: 410-745-3517.

**May 2-4** - Mid-Atlantic Chapter of American Rhododendron Society, Sheraton Baltimore, North Towson, MD. Contact: (804)642-9190.

**May 5, 12, 19** - Flowering Shrubs and Trees for the Landscape, Ornamentals Short Course Series, Fisher Greenhouse, Newark, 3-5 PM. Contact Dot Milsom, (302) 831-2531.

**May 7-9** - Communities Working for Wetlands, Radisson Plaza Hotel, Alexandria, VA. For more information please call (800)726-4853.

**May 10** - Charles Dunham Entranceway Dedication, UDBG, Newark, 1:30 PM. Contact Dot Milsom (302)831-2531.

**May 14** - 1997 Professional Course Schedule- Topic: Wetland Botany, Environmental Concern, Inc. (EC) - St. Michaels, MD. 8am - 5pm. Cost \$125. For more information please call (410)745-9620; fax: 410-745-3517.

**May 15** - PGMS Sessions at Winterthur Topic: Pheromone Traps. Time: 10:30am, plan to meet a half hour before the scheduled meeting time in the Winterthur visitor's pavilion. To make reservations, please call: John Feliciani (302)888-4865.

**May 16 - or May 23** - Weed Identification Workshop, Longwood Gardens Continuing Education Series. Location: Acer Room/grounds, 1-4 pm, Fee \$49. For a complete listing of Longwood Gardens Continuing Education Programs for Spring 1997, call:(610)388-1000, ext. 516.

**May 25-28** - 8th Global Warming International Conference & Expo, Columbia University, New York, New York. Contact: Global Warming International Center, P.O. Box 5272, Woodridge, IL 60517-0275; fax 630-9101561.

**May 29-31**- AABGA Annual Conference: The Great Green Way, New York, NY. Hosted by Brooklyn Botanic Garden.

**June 3 & 4** -DDA Promotes Safe Use of Pesticides to Benefit Environment. DDA and the University of Delaware Extension Service, will offer informational seminars, followed by testing to insure all commercial applicators are abiding by Delaware pesticide laws. Location: Delaware Dept. of Agriculture Conference Center, Dover, DE. Training times are 8:30am-4pm on the first day, and 8:30am to noon on the second day of each session. Testing time is 1pm to 3:30pm on the second day. To register call the Delaware Dept. of Agriculture Pesticides Section (800)282-8685 (DE only) or (302)739-4811.

**June 6** - Managing Perennials in the Garden, Longwood Gardens Continuing Education Series. Location: Idea Garden Tool House, 7-10 am, Fee \$59. For a complete listing of Longwood Gardens Continuing Education Programs for Spring 1997, call:(610)388-1000, ext. 516.

**June 6 - or June 27** - Garden Pest Identification Workshop, Longwood Gardens Continuing Education Series. Location: Acer Room/grounds, 1-4 pm, Fee \$49. For a complete listing of Longwood Gardens Continuing Education Programs for Spring 1997, call:(610)388-1000, ext. 516.

**June 9, 16, 23** -Weed Control, Ornamentals Short Course Series, New Castle County Extension Office, Newark, 3-5 PM. Contact Dot Milsom, (302) 831-2531.

**June 9** - Successful Perennials: Soil Preparation & Pruning, Longwood Gardens Continuing Education Series. Location: Conservatory Ballroom, 7:30 pm. Fee \$21. For a complete listing of Longwood Gardens Continuing Education Programs for Spring 1997, call:(610)388-1000, ext. 516.

**June 12** - PGMS Sessions at Winterthur Topic: How to Monitor for Insect Pests. Time: 10am, plan to meet a half hour before the scheduled meeting time in the Winterthur visitor's pavilion. To make reservations, please call: John Feliciani (302)888-4865.

**June 12-14** - Native-plants conference. Millersville University of Pennsylvania, Millersville, Pennsylvania Landscape & Nursery Association. Call: (717)872-3030, fax: 717-871-2022.

**June 13 - or June 20** - Plant Disease Identification Workshop, Longwood Gardens Continuing Education Series. Location: Acer room/gardens, 1-4 pm. Fee \$49. For a complete listing of Longwood Gardens Continuing Education Programs for Spring 1997, call:(610)388-1000, ext. 516.

**June 17,18,19,24,25,26 and 30** (optional day-July 1) - 7-Part Greenhouse Management Course with Optional Complete Cropping Cycle for Two Major Crop Groups. Location: Western Maryland Research and Education Center, Keedysville, MD. Contact: Steve Bogash (301)432-4492.

**June 24** - Plantsman's Garden Tour, Longwood Gardens Continuing Education Series. Location: bus leaves from Main Visitor Center parking lot, 9am - 5pm. Fee \$79. For a complete listing of Longwood Gardens Continuing

Education Programs for Spring 1997, call:(610)388-1000, ext. 516.

**July 10-13** - Convention. American Association of Nurserymen. Opryland Hotel, Nashville, TN. Call: (202)789-2900 or fax (202)789-1893.

**July 12,13,14,15 & 16** - (Educational Seminars)- 1997 Ohio International Floral Short Course, Let Yourself Grow! Cincinnati Convention Center, Cincinnati, Ohio. Sponsor: Ohio Florists' Association, with cooperation from The Ohio State University. For more information contact: Ohio Florists' Asso., (614)487-1117, fax: 614-487-1216.

**July 13,14 & 15** -(All-Industry Trade Show) - 1997 Ohio International Floral Short Course -Same information as above.

**July 15, 17, 22, 24** - Herbaceous Plant Production, Ornamentals Short Course Series, Research & Education Center, Georgetown, 6-8 PM. Contact Dot Milsom, (302) 831-2531.

**July 29-31** - PANTS. Pennsylvania Landscape & Nursery Asso., Ft. Washington Expo Center, Ft. Washington, Pennsylvania Landscape & Nursery Association. Call: 800-898-3411, (717)238-1673, fax: 717-238-1675, e-mail: plna@plna.com.

**August 3-9** - Symposium. Perennial Plant Association. Sheraton Imperial Hotel and Convention Center, Durham, NC. Call: (614)771-8431 or fax (614)876-5238.

**August 4-8** - 1997 Professional Course Schedule- Topic: Field Wetland Botany, Environmental Concern, Inc. (EC) - St. Michaels, MD. 8am - 5pm. Cost \$600. For more information please call (410)745-9620; fax: 410-745-3517.

**August 6** - Running a Landscape Business in the Electronic Age, Ornamentals Short Course Series, Townsend Hall, Newark, 9 AM - 3 PM. Contact Dot Milsom, (302) 831-2531.

**August 6** -1997 Professional Course Schedule- Topic: Constructed Wetlands for Stormwater and Sanitary Wastewater Treatment, Environmental Concern, Inc. (EC) - Patuxen NWVC, Laurel, MD. 9:30am - 5:30pm. Cost \$145. For more information please call (410)745-9620; fax: 410-745-3517.

**August 14** - 10th Annual Summer Turf and Nursery Expo. Joseph Wick Nurseries, Smyrna DE. Contact Marianne McGloin, (302)677-1895.

**August 19, 21, 26** - Shade Trees for the Landscape, Ornamentals Short Course Series, Fisher Greenhouse, Newark, 3-5 PM. Contact Dot Milsom, (302) 831-2531.

**September 11, 16, 18** - Diagnosis & Control of Diseases on Woody Ornamental Plants, Ornamentals Short Course Series, Research & Education Center, Georgetown, 4-6 PM. Contact Dot Milsom, (302) 831-2531.

**September 23 and 25** - Diagnosis & Control of Insects on Woody Ornamental Plants, Ornamentals Short Course Series, Research & Education Center, Georgetown, 4-6 PM. Contact Dot Milsom, (302) 831-2531.

**September 22-23** - 1997 Professional Course Schedule- Topic: Wetland Evaluation Methods, Environmental Concern, Inc. (EC) - Patuxen NWVC, Laurel, MD. 9:30am - 5:30pm. Cost \$475. For more information please call (410)745-9620; fax: 410-745-3517.

**September 24-26** -1997 Professional Course Schedule- Topic: Wetland Mitigation, Environmental Concern, Inc. (EC) - Patuxen NWVC, Laurel, MD. 9:30am - 5:30pm. Cost \$575. For more information please call (410)745-9620; fax: 410-745-3517.

**October 15** -1997 Professional Course Schedule- Topic: Uses for Constructed Wetlands, Environmental Concern, Inc. (EC) - Patuxen NWVC, Laurel, MD. 9:30am - 5:30pm. Cost \$135. For more information please call (410)745-9620; fax: 410-745-3517.

**October 20-24** -1997 Professional Course Schedule- Topic: Wetland Delineation, Environmental Concern, Inc. (EC) - Patuxen NWVC, Laurel, MD. 9:30am - 5:30pm. Cost \$500. For more information please call (410)745-9620; fax: 410-745-3517.

**October 21** - CNP exam. Delaware Department of Agriculture, Dover, PA. Contact Marianne McGloin (302) 677-1895.

