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**ASSOCIATION NEWS**  
**Valann Budischak**  
**Executive Director, D.N.L.A.**

Greetings to all our members at this very busy time of year! It seems like no one, myself included, can spare the time to stop and smell the roses. Remember to keep the Landscape Awards in mind throughout the summer. Applications will be mailed in the beginning of September. We encourage any/every member to submit an entry!

The D.N.L.A. is busy gearing up for our 2001 and 2002 events. The Summer Expo and Annual Golf Tournament will be held on Thursday, August 16<sup>th</sup> at Garrisons Lake Golf Club. We will once again have the opportunity to visit with exhibitors and friends, hear from some outstanding speakers, and obtain a pesticide credit. And back by popular demand – the pig roast! This year we will have the opportunity to see Doug Rose (E.P. Henry) construct an interlocking paving stone walkway. We will be able to witness the installation from start to finish. Brian Whitcher (Turf Equipment and Supply Co.) will go over the nuts and bolts of the profitable pond business. Jay Windsor will challenge our weed identification skills. Registration forms are forthcoming. Please join us for this fun-filled day!

The formats for the Ornamental and Turf Workshop (Nov. 8<sup>th</sup> & 15<sup>th</sup>), and the Delaware Horticulture Industry Expo (Jan. 16<sup>th</sup> & 17<sup>th</sup>) will be undergoing some exciting changes this year. We will be sure to keep you posted.

Now for a brief legislative update: The DNLA, PGMS, and the DE State Golf Assoc. – Green Section, in conjunction with DNREC and the Water Supply Coordinating Council, continues to work to produce a Green Industry Document that will serve as a resource for officials in case of a drought emergency. We have also issued a

statement to various legislators regarding our position concerning HB 228. “This Act would require the disclosure, prior to application, of the potential risks, side effects and hazards known to exist with respect to a particular pesticide, and the recommended precautions for handling or contact with any such pesticide.”

On March 20<sup>th</sup>, thirteen individuals sat for the Certified Nursery Professional core and/or specialty exams. Congratulations are in order for the following individuals:

**NEW CNP’s:**

Earl Baker  
*Delaware River and Bay Authority*  
Landscape Specialist

James Ryan  
*James F. Ryan Nursery*  
Landscape Specialist

Paula Krakowski  
*Delaware River and Bay Authority*  
Greenhouse Production Specialist

Deborah Ann Pummell  
*Lowe’s of Sussex County*  
Garden Center Specialist

Christopher Reed  
*State of Delaware – Division of Facilities Management*  
Landscape Specialist  
Turfgrass Management Specialist

Margarita Herko  
*Paulish’s Landscaping Co., Inc.*  
Nursery Production Specialist

John Staley  
*Ronny’s Garden World*  
Landscape Design Specialist

Frank Green  
*Wallace Landscape Associates, Inc.*  
Nursery Production Specialist

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

**NEW SPECIALTIES ADDED:**

Patrick Hogan  
*Delaware River and Bay Authority*  
Turfgrass Management Specialist  
Garden Center Specialist

Jon Workman  
*Sunset Vista Designs*  
Landscape Design Specialist

**Welcome New Members:**

**A.H. Angerstein, Inc.**  
315 New Road  
Wilmington, DE 19805  
(302) 996-3500

**Moyer & Son, Inc.**  
113 E. Reliance Road  
Souderton, PA 18964-0198  
(610) 622-6826

**Marian Gardens Tree Farm**  
102 Jarett Road  
Summerville, SC 29485  
(800) 882-6882

In the last DNLA News issue, I introduced the 2001 ornamentals short course series--Integrated Landscape Management. The final session of this series will be a new collaboration between Delaware Cooperative Extension and the DNLA. On two consecutive Thursdays, November 8 and November 15 we will hold workshops at Hockessin Memorial Hall. The sessions will be a combination of lecture and problem solving. Experts like Bob Mulrooney and Dewey Caron from the University of Delaware and Steve Hart from Rutgers University will cover new information about disease, insect and weed problems in the landscape. Horticulturists like Jay Windsor, Gordon Johnson and Jo Mercer from Delaware Cooperative Extension will explain the link between cultural conditions and plant problems. Then small groups of participants will work to solve a series of typical landscape problems—the kind you encounter in your businesses everyday. This will be a great opportunity to receive pesticide credits, network with your colleagues and get a leg up on the 2002 landscape season.

The following short courses are coming up this summer:

**Pest Walk** – June 28 from 9 am to 12 pm at UDBG, Newark, DE.

**Weed Identification and Control** – July 17 from 4 to 6 pm at the Research and Education Center, Georgetown, DE.

**Diagnosis & Control of Insects on Woody Ornamental Plants** – July 18 from 4 to 6 pm at the Research and Education Center, Georgetown, DE.

**Weed Identification and Control** – August 9 from 2-6 pm at the University of Delaware Botanic Gardens, Newark, DE.

**Landscape Tour** – August 15 from 9 am to 12 pm at sites in Kent County.

Tom Sims, a University of Delaware Soils Professor, received a grant from the Inland Bays to study the economic impact of completing a nutrient management plan for a golf course and lawn care business. I have been working with two students this spring to outline potential nutrient management plans for these two segments of the landscape horticulture industry. The students have been interviewing practitioners in the industry to check the feasibility of the plans and assign costs to completing a nutrient management plan. John Ritterson, the student working on the lawn care plan, would like to interview a few more lawn care companies from Southern Delaware. At the height of the lawn care season, it has been a little hard to get time with the professionals. If your season settles down a little in June, give me a call (302-831-1375) and I will hook you up with John. We really need your input in this project.

## **KEEPING WORKERS COMPENSATION COSTS UNDER CONTROL**

**John M. Hodapp**  
**Senior Vice President**

**Florists' Mutual Insurance Company**

As an employer, certain employment-related costs are simply beyond your control. For example, if you pay wages, you are probably also paying the employer's share of Social Security and Medicare taxes. Other employment-related costs, however, provide opportunities for cost savings. An example of one such cost is Workers' Compensation.

### **Factors That Determine Workers Compensation Premiums**

To help understand the most effective ways to reduce Workers Compensation costs, it may help to understand how premiums are determined. The following are some of the factors that go into determining a Workers Compensation premium:

- **The type of work your employees do.** You will pay more if you employ steeplejacks than if you employ clerical office employees. Insurance companies typically use an industry-standard system of 4-digit Classification Codes to categorize various jobs.
- **Your payroll.** As your payroll increases, so does your Workers Compensation premium. However, because thriving businesses need quality employees, you can find ways to control Workers Compensation costs in ways other than by reducing payroll.
- **The insurance "rate".** This is a rate, by Classification Code, which applies per \$100 of payroll.

- **Schedule Credit.** Many states allow insurance companies to apply Schedule Credits to “reflect the unique characteristics” of their customers’ businesses.
- **Experience Modification Factor.** Firms with a Workers Compensation premium of \$5,000 or more have an Experience Modification Factor applied to their policy. This factor is based on a firm’s individual loss experience as compared with industry averages.
- **Premium Discount.** This is a “volume discount” built into rating plans.

## Cost Saving Strategies

### *Classification Issues*

Proper classification of employees is essential to assure that both the employer and insurance company are treated fairly. Because the classifications for florist businesses are quite well defined, it is usually a simple matter to work with your insurance agent to assure that your employees are classified properly.

There may be some confusion when an employee works in two or more categories. Something as simple as good bookkeeping can really pay off. For example, lets suppose a florist also does some landscaping. An employee who works both in the flower shop and on landscape jobs must be charged at the higher landscaping rate for the entire year unless records are maintained showing pay periods during which the employee worked only in the flower shop. In that case, the lower “florist” rate would apply to this employee (except for those pay periods during which the employee actually did landscaping work).

### *Loss Control Issues*

The greatest potential *by far* to reduce Workers Compensation costs over the long run is to reduce the frequency and severity of injuries through a good safety program. Such an approach directly or indirectly impacts many of the rating factors outlined earlier. Here’s how:

- A good Safety and Loss Control Program will help your company qualify for more favorable Rates, Dividend Plans and/or Schedule Credits. Insurance companies utilize a variety of plans to compete aggressively for quality employers. Conversely, employers with unsafe workplaces and poor safety records are less sought after by insurers, and typically have much higher premium costs.
- For firms big enough to have an Experience Modification Factor (those with \$5,000 or greater premium), fewer losses translate directly to a more favorable Experience Modification Factor. A firm with a 1.25 Experience Modification pays 66 percent more than a competitor with a .75 factor. Which company would you rather be?

### *How to Get Started*

In one respect, Loss Control is like your retirement savings plan – the sooner you get started, the better off you are going to be. Start by utilizing services that may already be available to you. At no cost to our customers, Florists’ Mutual provides an extensive array of Loss Control Services including:

- Customized safety-training programs;
- Video loan library with programs on a variety of Loss Control topics;
- Defensive Driving Training (Remember

that an employee injured in an accident compounds an auto claim into a Workers Compensation case as well);

- Information on the safe use and storage of chemicals;
- Safety signs, posters and pamphlets (with many available in bi-lingual formats);
- On-site visits from a Loss Control Professional;
- Access to expert assistance whenever you need it.

### *Additional Benefits*

There are additional incentives beyond those solely related to Workers Compensation costs. For example, in today's extremely competitive labor market, productivity usually decreases while injured regular employees recuperate. And who among us wants to see the people we work with closely with on a daily basis endure pain and suffering from work-related injuries – especially those which could have been prevented?

Still think Loss Control isn't for you? Look again. Industry analysis has proven time and again that safety doesn't cost – it pays!

## **PROFESSIONAL CERTIFICATION**

### **Top ten reasons to seek it out**

Everyone knows that M.D. following an individual's name means he/she is a medical doctor; and CPA signifies the individual has met standards and fulfilled requirements to be a certified public account. Thousands of associations utilize professional certification to recognize individuals for their dedication to their chosen career and their ability to perform to set standards.

Ask a certified professional "why," and they'll tell you that the certification process is one of the single most important steps you can make in career development. Here are the top ten reasons you should consider professional certification:

#### **1. Demonstrates your commitment to the profession**

Receiving your certification shows your peers, supervisors and, in turn, the general public your commitment to your chosen career and your ability to perform to set standards. Since university degrees can no longer represent the full measure of professional knowledge and competence in today's evolving job market, certification sets you apart as a leader in the profession.

#### **2. Enhances the profession's image**

Society certification programs seek to grow, promote and develop certified professionals who can stand "out in front" as examples of excellence in the industry or field.

#### **3. Reflects achievement**

A certified professional has displayed excellence in his or her field and fulfilled a set of standards and requirements.

#### **4. Builds self-esteem**

Certification creates a standard for the profession, complete with performance standards, ethics and career paths. You'll begin to define yourself beyond a job description or academic level. You'll see yourself as a certified professional who can control his or her own professional destiny and find a deep sense of personal satisfaction.

#### **5. Establishes professional credentials**

Since it recognizes your individual accomplishments, certification stands above your resume, serving as an impartial, third-party endorsement to your knowledge and experience. When the industry looks for individuals qualified to perform services, they seek individuals – like you – who have achieved certification.

#### **6. Improves career opportunities and advancement**

Certification gives you the “edge” when being considered for a promotion or other career opportunities. Certification clearly identifies you as an employee who can adapt to changes in work, technology, business practices and innovation.

#### **7. Preparation for greater on-the-job responsibilities**

Since certification is a voluntary professional commitment to an industry or field of knowledge, it is a clear indicator of your willingness to invest in your own professional development. Professionals are aware of the constantly-changing environment around their profession, and possess the needed tools to anticipate and respond to change.

#### **8. Provides for greater earnings potential**

As a certified professional, you can expect many benefits, but for today's down-sized, right-sized, topsy-turvy working world, salary increases speak for themselves.

#### **9. Improves skills and knowledge**

Ideally, achieving certification shows your individual competence by confirming proficiency and career involvement and assuring knowledge.

#### **10. Offers greater professional recognition from peers**

As a certified professional you can expect increased recognition from your peers for taking that extra step in your professional development. Check into certification soon. It will give your career and professional life an real boost.

*This article appeared in the March-April 1999 issue of the Grounds Management Forum, the official publication of the Professional Grounds Management Society.*

## **CONTROL OF WHITE GRUBS IN LANDSCAPES AND NURSERIES**

**Dr. Steven R. Alm  
University of Rhode Island**

There are five white grubs species that can be found attacking turfgrasses in Rhode Island. They are the larvae of: Japanese beetles, Oriental beetles, European chafers, Asiatic garden beetles, and Northern Masked chafers. The most common are larvae of Japanese and Oriental beetles and European chafers. The larvae of May or June beetles also attack turfgrasses, however, they are more likely to be found infesting nursery stock such as azaleas and rhododendrons.

The life cycles of the major turf infesting species are very similar. Adults emerge in mid-to late June (Oriental and Asiatic garden beetles, and European and Northern masked chafers) or early July (Japanese beetles). The Japanese beetle is a pest in both the larval and adult stages. The host list for Japanese beetle adults includes over 300 species of plants. The preferred hosts are: American linden, crabapple, apple, Japanese maple, Norway maple, rose, and crape myrtle. Plants that are resistant to Japanese beetle feeding include: magnolia, redbud, dogwood, red maple, Northern red oak, burning bush, holly, boxwood, hemlock and ash. The Asiatic garden beetle is the next most serious pest in the adult stage. It's preferred hosts are: box elder, butterfly bush, Japanese barberry, rose sumac, and viburnum. Avoiding the preferred hosts of these pests will reduce the likelihood of having a grub infestation. Oriental beetles European and Northern masked chafers do little or no feeding in the adult stage.

After mating, females burrow into the soil to lay eggs that hatch within a week or two if moisture is adequate. The youngest larvae are called first instars. They molt two more times to 2<sup>nd</sup> and 3<sup>rd</sup> instars. The 3<sup>rd</sup> instar grubs are the large

grubs you are likely to see in late August – October. That is also the over wintering stage. The most damage to turfgrasses is done by the 2<sup>nd</sup> and 3<sup>rd</sup> instars in August – October (or by skunks or crows looking for a grub meal). The 3<sup>rd</sup> instar grubs do some feeding in the spring, pupate in June and emerge again in June or July. All of the grub pests of lawns have one generation per year (with the exception of the May or June beetles, which have a two to three year life cycle). European chafer grubs may continue to feed in the thatch region well into November (or beyond during mild winters). They also are the first grubs to return to the thatch region to feed in the spring. Asiatic garden beetle larvae feed deeper in the soil profile, on weedy lawns, and are smaller in size than any of the other grub species. As such, they are generally less of a problem on well-managed turfgrasses.

Dr. Mike Villani and colleagues at Cornell University surveyed over 300 lawns for European chafer grubs in the Rochester, NY area. They found fewer grubs in lawns where they was greater than 60% shade. Liming to achieve a soil pH conducive to growing turfgrasses, is another cultural practice that can produce a sward of turf capable of outgrowing feeding damage by grubs.

During the 1920's and 30's the U.S. Dept. of Agriculture sent scientists to Japan, Korea, China, India, Formosa, and Australia to search for parasitoids of Japanese beetles. They found 10 species of flies and 54 species of wasps that would parasitize Japanese beetle adults or larvae. Some were imported into the U.S. and can still be found here. One species of fly was so effective in Sapporo, Japan that 100 percent of the beetles in one survey were parasitized. This species has recently been found to be parasitizing 70% of the beetles in one region of Connecticut. There is little doubt that beneficial insects (parasitoids) can exert a huge influence

on a pest population if conditions are suitable for their development. There are still some ongoing searches for parasitoids in Asia, albeit at a much reduced level from the 1920's and 30's. Currently there is no source to purchase parasitoid flies or wasps.

Other biological controls that can be purchased include: bacteria, entomopathogenic nematodes, and fungi. Milky disease, *Paenibacillus popilliae* (formerly *Bacillus popilliae*), is a bacterium that multiplies in the insects' body and eventually kills it. There are several strains specific to each grub species. The effectiveness of milky disease against all of the white grub species is a point of much debate among turfgrass entomologists. Another bacterium, *Bacillus thuringiensis japonensis*, is very effective against Japanese and Oriental beetle larvae, but is not yet available commercially.

Entomopathogenic nematodes are small worms that also contain bacteria that can infect white grubs. We have demonstrated up to 80% control of white grubs with *Steinernema glaseri* at rates of 2 billion/acre. There is a good website: <http://www.oardc.ohio-state.edu/nematodes/> that explains the use of nematodes for control of turfgrass pests. Major considerations for success with nematodes against white grubs include: 1) matching up a nematode species with a suitable target pest, 2) applying nematodes at sufficient rates, 3) applying nematodes when soil temperatures are adequate and solar radiation is minimized.

There is a commercially available fungus, *Beauveria bassiana* (trade name Naturalis-T), that is available for turf insect control. I do not have any personal experience with this product.

Chemical controls include Merit or Bayer Advanced Laen (imidacloprid), Mach 2 or GrubEx (halofenozide), Dylox (trichlorfon), and Sevin (carbaryl). Imidacloprid and halofenozide

work best when applied before eggs hatch. Imidacloprid can be applied from May through mid-August. A difficult concept for some to grasp is that if imidacloprid is applied in May, it will control grubs in the fall. In other words, it controls the generation of white grubs that hatch **after** the imidacloprid was applied in May! Halofenozide is a mimic of 20-hydroxyecdysone (the insect molting hormone). This material best applied when beetles are flying in late June or July. The active ingredient will then be in the root zone to control grubs as they molt from 1<sup>st</sup> to 2<sup>nd</sup> or 3<sup>rd</sup> instars. Halofenozide is generally not effective against 3<sup>rd</sup> instars due to its mode of action (interferes with molting). Trichlorfon (Dylox) has a short soil half-life (10 days) and as such is good for control of grubs once you know you have a problem. Carbaryl (Sevin) is also a curative material. Check out the URI website for fact sheets on various turf, ornamental and other pest problems at <http://www.uri.edu/ce/factsheets/>.

*Reprinted from The Rhode Island Nursery & Landscape Association Newsletter, Spring 2001.*

## **WATER QUALITY MANAGEMENT CLEARING POND WATER**

**Dan Terlizzi**

**Sea Grant Quality Specialist**

Turbidity, or cloudiness in pond water, is caused by several factors ranging from excess phytoplankton growth to silty runoff from adjoining land. Phytoplankton are a natural part of the pond with seasonal cycles of growth and decline requiring specific plant management techniques. The “mineral” turbidity found in ponds is due to colloidal particles (clay) suspended in the water column. This is a fancy way of saying these particles are so small they float rather than sink. Clay particles are usually negatively charged. These charges on colloidal particles help keep them afloat by their attraction to the positive charges on water molecules. When the negative charges on colloids are matched by the positive charge of a treatment chemical, the clay settles out. This chemical precipitation, termed flocculation, provides the basis for the treatment of turbidity.

Management techniques for turbidity deal with the aesthetic problem of cloudiness in the water. However, ponds that are excessively or routinely turbid will require more direct solutions such as diversion mechanisms to reduce runoff into the pond and sedimentation basins at points of entry to allow for sedimentation before water enters the pond. If your pond has an occasional problem with turbidity the following treatments may be helpful.

One of the oldest and simplest techniques is the application of organic matter, hay or manure, to the pond. Studies conducted in the 1950s showed reduction of clay turbidity following application of 100 to 1,000 lbs. of hay, per acre-foot (the area of the pond multiplied by the average depth) or 1,000 lbs. of manure per surface acre. The precipitation of clay may be a result of changes in pH during decomposition of

the hay but the exact mechanism of is unknown. Organic materials are not used as often as other clarifying techniques because of the potential for oxygen depletion, and certain aesthetic considerations.

Other treatments of turbidity include application of alum (aluminum sulfate), slaked lime and gypsum. Alum is the most effective of the three. All chemical treatments influence other parts of water chemistry and should be made only when necessary and after careful calculation of your pond size or volume and treatment rates. Studies conducted at Auburn University by Dr. Claude Boyd showed that application of alum at up to 20 mg/liter reduced turbidity. Alum does not appear to be toxic to fish at these levels. However, application of alum reduces alkalinity that can lead to lower pH. Alum applications should be made as uniformly as possible over the pond surface and mixed evenly using an aerator.

Slaked lime (calcium hydroxide) is effective in water clarification at concentrations about twice those required with gypsum. Although economical for use in water clarification, slaked lime is strongly basic in water and will usually increase the pH. Increased pH can lead to fish mortality directly or by increasing the toxicity of ammonia, the primary waste product of fish.

Gypsum (calcium sulfate) is much less effective than alum. Studies conducted at Auburn University demonstrated that up to 20 times as much gypsum was required to achieve the same clarity resulting from alum treatment. The fact that alum is less expensive than gypsum and that less slum is required for clarification presents a strong economic incentive for its use. However in soft water situations the use of gypsum would have the added benefit of increasing hardness.

*Reprinted from Free State Nursery News,  
February 2001.*

## **CORN PREVENTS CRABGRASS AND WEEDS**

### **New Natural Fertilizer Made from Corn Presents Crabgrass and Weeds in Lawns**

Every spring homeowners spread millions of pounds of herbicide in an attempt to prevent crabgrass, dandelions and other noxious weeds from choking their lawns. This spring consumers have a new, natural alternative for weed prevention.

Concern® All Natural Weed Prevention Plus 8-2-4 feeds the lawn and prevents crabgrass, dandelions and other weeds from becoming established. “This is a real breakthrough. For the first time ever, homeowners have the option of using an effective, all-natural pre-emergent herbicide on their lawns. Consumers are demanding products that are safe for people, pets and wildlife” according to Mike Engler, CEO of INTAGRA Necessary Organics, makers of Concern products.

**The secret comes from corn.** Researchers at Iowa State University discovered that corn gluten meal (a byproduct of animal feed production) is highly effective in preventing crabgrass. Subsequent studies have shown this product to be highly effective in inhibiting a wide-variety of broadleaf weeds as well. As an added bonus, corn gluten is an effective natural fertilizer. The corn gluten in Weed Prevention Plus 89-2-4 is supplemented with additional natural turf nutrients to provide an 8-2-4 nutrient ration.

The new 25- pound bag of Weed Prevention Plus 8-2-4 treats and fertilizes 1,500 square feet. It was developed in response to requests from numerous gardeners who wanted an effective, non-chemical approach to weed prevention for their lawns. A convenient 5-lb shaker bag of Weed Prevention Plus has been available since

1998 for use in flower and vegetable gardens, around trees and shrubs, and for spot treatment on lawns.

### **Natural pest control comes of age**

Natural pest control products have come a long way since they first appeared decades ago. Although some of the early formulas were perceived as being less effective than synthetic chemicals, today’s natural insecticides often exceed the performance of traditional products.

For example, in studies done by Granovsky & Associates, Concern Citrus Home Pest Control had a higher initial kill and residual control rate on cockroaches than Dursban over the course of 27 days.

Unlike chemical pest controls that typically specify a “withdrawal” period on edible crops, Concern Multipurpose Insect Killer can be applied right up to the day of harvest.

Two market situations have combined to bring about the maturation of the natural pest control market: the vacuum created by the EPA’s ban on Dursban and diazinon, and an ever increasing demand among consumers for effective products that are safe for humans as well as the environment. “We’re seeing a very significant increase in demand for our natural products on the heels of the EPA’s actions. Consumers want products that are not only safe, but are also highly effective” says Mike Engler, CEO of Necessary Organics, makers of Concern products.

Further information can be obtained by visiting the company’s website, [www.concerngarden.com](http://www.concerngarden.com)

*Reprinted from VNLA Newsletter, March/April 2001.*

## **BUILDING A DRY STACKED RETAINING WALL**

**Lindsay Saady, Marketing Coordinator  
Luck Stone Corporation  
Architectural Stone Division**

The purpose of building a retaining wall is to retain a bank of soil. However, garden walls are often most effective for highlighting surrounding landscaping. So you may want to create your own soil bank if you do not have an existing one.

The easiest walls to build are two feet or less in height. We do not recommend building walls higher than three feet without further instruction from a mason or landscaping expert. Higher walls require more stabilization and much larger stones.

### **The Planning Process**

When thinking about building a dry stacked wall, a wall built using stone and no mortar, careful planning is a must. Decide where you will put the wall, how long and how high you would like for it to be, and consider any curves, benches, or special features you may want to create. Talk to your local Luck Stone experts to decide how much stone your project will require.

Once you have decided on the design of your wall, be sure to gather all of the tools and materials you will need throughout the project before you begin. Some of the essentials include a good shovel, a small rubber mallet, tape measure, carpenter's level, a pick or mason's hammer, gravel, and either purchased or reserved soil.

You can lay out a garden hose along the space to guide you as you begin constructing the wall to be sure you get the shape you desire. You could

also use marking stakes and string.

Before you begin, a great way to organize yourself is to lay out the stone in different piles according to size and shape. This will not only help familiarize you with the materials you have to work with, but it will make it easier to find the appropriate pieces when you need them. Be sure to save the flattest, largest stones for capstones.

### **Preparing the Site**

You must make a cut in the soil bank before you begin, whether you are working with an existing bank or creating one. This can almost always be made by hand for low walls. The cut should angle back slightly. This angle is referred to as the wall's batter. As you build, you will give the wall a slight backward angle to contribute to the sturdiness and to make sure that pressure from the gravel and soil behind it does not cause it to topple over. This angle should be about 5-10 degrees. The higher the wall, the larger the required batter. If you are not familiar with angles, use a clock as a reference. At 12:01, the minute hand sits at a 6-degree angle from the top.

Next, you must dig a trench to serve as a base for the wall. Before you begin digging, keep in mind that you will build the wall a few inches in front of the soil bank. The extra room will eventually be filled in with gravel, creating a sturdier wall. Be sure to allow for this space from the beginning by digging the trench a few inches wider than your anticipated wall width. The base trench should be about 6 inches deep. After the trench is completed, fill it with about 2 inches of gravel, sand, or stone dust.

### **Laying the Base Course**

After having set aside the stones you would like to use for capstones, choose the largest and flattest stones for the foundation of the wall. The best stones to use here would be those that

have one very flat surface and one irregular one. Bury the irregular surface in the gravel base. Unless your wall backs up to another structure, keep in mind that the first stone of each course will serve as a cornerstone. So, if it does not reach all of the way back to the soil behind it, you will need to put an additional stone behind it to fill in the space so that the gravel will not filter out from behind the wall.

Continue to set stones in the same manner until you are a few feet from the end of the wall. Lining the front ends up as well as possible is your most important task. The backside of the wall will be filled in with gravel, so larger spaces in back are not as worrisome. When you are close to the end of the course place the end stone. Work backwards to fill in the rest of the course. This will make finding a good fit much easier than finding the perfect stone to line up on the corner of the wall.

### **Setting the Backfill**

After completing the first course, spread gravel behind the row, filling in any gaps along the way. The gravel will serve to level the stones and lock them into place. Use a pick or the curved end of a mason's hammer to fill spaces tightly. While this process can be time consuming, it strengthens the wall considerably. Be sure to remove any excess gravel from the tops of the stone before beginning the next course.

### **Building the Wall**

Repeat the process of laying each course and filling each one in with a gravel backfill at its completion. This is the time to place any plants you would like to have growing throughout the wall. Instructions for incorporating plants in your stonewall are at the end of this article. Here are a few things to keep in mind as you work:

- Pay attention to the batter as you build.

A slight backward angle makes a world of difference to the sturdiness of your wall.

- Remember to always set the cornerstone and work backwards when you get a few feet from the end of a course.
- Fit stones together as well as possible. Use wedge stones to stabilize larger stones or to fill in small gaps. Small joints are the key to a nicer wall.
- Be sure to stagger your joints. You may ignore this rule occasionally if two stones happen to fit together particularly well. But never do so for more than one course. Vertical running joints can cause a weak spot in the wall.

### **Placing the Capstones**

First arrange the stones in order on the ground. This will help you to see what you have to work with and find the best fit. You may need to adjust the wall height by adding some small stones to ensure an even top. Be sure the capstones are secure and their edges match as closely as possible. There is no need to backfill the capstones.

Finally, cover the gravel that remains visible with topsoil, and enjoy your new stonewall!!

### **Incorporating Plants in Dry stacked Walls**

Setting plants into a stonewall is a beautiful way to add interest and to bring a sense of establishment to your new landscape. The process is also relatively easy, and requires few materials. You will need 3 gallons of a rich soil mixture per plant, some landscape fabric, and perhaps a small garden shovel. The best soil mixture is made up of topsoil, composted manure, coarse sand, and water-absorbing granules. The granules absorb water and release it gradually into the soil, and are available at

nurseries and garden stores.

While it is easiest to incorporate plants as you lay the wall, avoid doing so if temperatures are too cold for young plants.

To set plants in the wall during the building process, leave a small gap between two stones, just wide enough to hold the plant's crown and some soil. First lay down a piece of landscape fabric, cutting a hole that will allow the plants roots to extend back to the soil bank. The fabric will keep the soil from filtering down through the gravel backfill. Lay down a trail of soil, using about 2 of the 3 gallons you have on hand. Lay the plant on the soil trail; making sure the crown is about 2 inches from the face of the wall. This will protect the plant from harsh winds. Make sure the opposite end of the crown extends through the hole in the landscape fabric, and fan the roots out gently on the soil trail. Place the remaining gallon of soil on top of the plant, and water the entire area well.

As you continue to build the wall, the gravel backfill will cover the soil surrounding the plant's roots. Remember that placing plants randomly in bunches looks much more natural than placing them at even intervals. Avoid over planting unless your goal is to see more plants than stone. And be sure to water your plants, especially during their first season.

Plants requiring well-drained soil are especially good for dry stacked walls because of the drainage provided by the gravel backfill.

*Reprinted from VNLA Newsletter, March/April 2001.*

## **PPA NAMES JUNE PERENNIAL GARDENING MONTH**

Here's one more way to help extend your sales into the summer; The Perennial Plant Association is rolling out a "June is Perennial Gardening Month" promotion.

"June is the kickoff," says Executive Director Steve Still, "but we're looking at this as a summer-long program."

Steve says the idea is to help boost sagging garden center sales after Memorial Day, when most gardeners stop thinking about perennials. He says that many gardeners still think of perennials as they did back when they were only available as bareroot plants that were planted in the spring. PPA wants gardeners to think about planting throughout the summer, or at least planting in June for summer-long blooms. PPA is developing POP materials, including posters listing summer flowering perennials, postcards for retail mailings, and a newsletter with basic information about summertime perennial gardening.

For more information, contact PPA. Tel: 614771-8431, email: [ppa@perennialplant.org](mailto:ppa@perennialplant.org).

## Publications

**Internet – Heat-Zone Hardiness Map.** Most gardeners are familiar with the USDA Plant Hardiness Zone Map that helps to determine if plants can survive local winter conditions. Cold weather is an important factor in plant survival, but plants are also affected by the opposite, extreme heat. The American Horticultural Society (AHS) Plant Heat-Zone Map was developed as a tool to indicate the heat tolerance of plants. Data from the National Climatic Data Center archives was analyzed by Meteorological Evaluation Services Co., Inc., to create a color coded US map divided into 12 zones. This map can be used to determine if a plant will survive summer months. The heat zones were determined by the average number of hot days (temperatures over 86 degrees).

Copies of the map may be purchased from AHS for \$9.95. To view the color Heat-Zone Map, visit the AHS website at:  
[http://www.ahs.org/publications/heat\\_zone\\_map..htm](http://www.ahs.org/publications/heat_zone_map..htm)

### **PlantAmerica – Multimedia Resources for Horticulture & Design**

PO Box 589, Locust Valley, New York, 11560,  
[www.plantamerica.com](http://www.plantamerica.com), Tel: 516-674-4238 –  
Fax: 4773 – Email – [donna@plantamerica.com](mailto:donna@plantamerica.com)

The CD offers descriptions of 9,470 plant species and cultivars, more than 1,100 line drawings, and more than 2,100 high quality photographs of trees, shrubs, vines and groundcovers. Approximately 1,225 printed pages of text cover the history and uses of plants and provide useful information on experiences with plants in different parts of North America. A powerful search engine allows you to find the perfect plants for your landscape requirements. Help files include a glossary, a hardiness zone map, a section on plant nomenclature and

classification and diagrams to clarify terms used to identify plant shapes.

**UMASS Extension Management Guide for Woody Ornamentals (Part I).** 2001-2001 edition of the Professional Management Guide for Insects, Diseases and Weeds of Trees and Shrubs in New England. Revised and updated every two years in order to provide arborists, tree wardens and Green Industry professionals with current information on the materials and products available to manage pests of woody plants in New England. Comes unbound but 3-hole punched so that outdated pages can be discarded easily with new updates become available. A 3-ring binder is required. Cost: \$20.00. For more information: Extension Bookstore, Draper Hall, 40 Campus Center Way, University of Massachusetts, Amherst, MA 01003-9244. Call (413)545-2717 for credit card orders. *Make checks payable to Umass.*

**Strategies for Plant Health Management of Woody Ornamentals (Part II).** A collection of recent articles and fact sheets by Umass Extension Educators including *Bio-Rational Pesticides* and *The Long Term Effects of Drought on Woody Plants*, as well as an extensive guide to *Low Maintenance Trees and Shrubs*. Comes bound and 3-hole punched. Cost: \$12.00. Parts I & II in an inscribed 3-ring binder, cost \$38.00. For more information: Extension Bookstore, Draper Hall, 40 Campus Center Way, University of Massachusetts, Amherst, MA 01003-9244. Call (413)545-2717 for credit card orders. *Make checks payable to Umass.*

**Guide Helps Independent Garden Centers Evaluate Business.** The University of New Hampshire Cooperative Extension recently released *The Garden Center Critique & Merchandising Guide*, a do-it-yourself handbook that allows independent garden centers to evaluate their businesses and offers

suggestions on how they can differentiate themselves from their competition. Created by David Seavey, extension educator at the University of New Hampshire Cooperative Extension in Boscawen. The cornerstone of the three-part guide is an eight-page, 160-question quiz designed to stimulate creativity in guiding the growth and direction of a garden center. Questions cover topics such as company image, exterior and interior layout, pricing, customer service and sales personnel. There is a section that includes marketing tips and photos that illustrate innovative marketing ideas. The guide also includes suggestions for seasonal and holiday promotional events to improve off-season sales. *The Garden Center Critique & Merchandising Guide* is available from the University of New Hampshire Cooperative Extension for \$18. To order a copy, call (603) 225-5505.

**The Complete Plant Selection Guide for Landscape Design.** Quick, easy-to-use reference guide for choosing plant material for landscape designs includes comprehensive lists of search criteria for each major plant group consisting of 25 categories for each plant group. Also includes more than 3,000 specific species, varieties, and cultivars that are readily available in the marketplace from the major production nurseries. Great resource for landscape architects, designers, contractors, or anyone who designs with plants. (ISBN 1-55753-13900) is a 760-page hardcover book retailing for \$54.95. A CD-ROM version will shortly be available. Order Dept: 1-800-247-6553; Purdue University Press, PO Box 388, Ashland, OH 44805, 1207 South Campus Courts-E., West Lafayette, Indiana 47907-1207. Phone (765)494-2038, Fax: 765-496-2442 – toll free (800)933-9637. Web address: [www.thepress.purdue.edu](http://www.thepress.purdue.edu), E-mail: [libpup@omni.cc.purdue.edu](mailto:libpup@omni.cc.purdue.edu)

**Auburn Universities Plant Identification Resource**, by Ken Tilt, Bernice Fischman, Harry Ponder, Dee Williams and Beth Clendenen and photos by numerous Auburn faculty and staff is a useful tool. It can be found at <http://www.ag.auburn.edu/landscape>

**Internet - Insects on the Web at Virginia Tech.** The Insect Identification Laboratory at Virginia Tech has a web site with information that can assist you in identifying home, landscape, and garden insects. Also available are insect fact sheets, and images.

<http://everest.ento.vt.edu/Facilities/OnCampus/IDInfo.html>

Site provides information on common insect and mite pests of vegetables found in Virginia and nearby areas. Information includes identification assistance, images, fact sheets, and control methods. <http://everest.ento.vt.edu/idlab/vegpests/vegl.html>

The Virginia Tech Department of Entomology main page: <http://www.ento.vt.edu/>

**3D Insects Welcome to the world of virtual insects!** If you don't like real insects, you'll like virtual insects because you can see them close with a microscope.

<http://everest.ento.vt.edu/sharov/3d3dinsect.html> (QuickTime plug-in is needed to see movies: CosmoPlayer (for Windows) or Worldview (for Macintosh) plug-ins are needed for the VRML.)

Whether you're looking for information on specific insects, interesting insect recipes, or other entomology departments and societies, you can find the links here:

<http://www.isis.vt.edu/-fanjun/text/Links.html>

**2001 Pest Management Guide Available.** The Virginia Cooperative Extension Pest Management Guides are available in two formats: hard copy and on-line as PDF files.

**Hard Copy (3 volumes)** To obtain a hard copy of one or all of the Guides, print the PMG Order Form and follow the instructions on the form. Cost is \$16.00 each or \$43.00 for the 3-volume set. **On-line as PDF files\*** Files available are divided into three volumes Field Crops, Home Grounds and Animals, and Horticultural and Forest Crops. Each of the volumes is further divided into chapters and/or sections.

*\*Please note: Accessing a PDF file requires that you have the Adobe Acrobat Reader installed on your computer. You can obtain a free copy of the Reader from the Adobe website. Download the publications at:*

<http://www.ext.vt.edu/pubs/pmg/index.html>  
(verified 4/3/01)

**AGRICULTURAL CHEMICALS BOOK I – INSECTICIDES** – Now available this new edition contains approximately 15 new insecticide – miticide products since the last edition. Also updated information on the older products has been included. The cost is \$24.95 each plus tax, if applicable, and \$5.50 for shipping. Available from Thompson Publications, PO Box 9335, Fresno, CA, 93791, phone 559-266-2964, fax 559-266-0189 or [www.agbook.com](http://www.agbook.com)

The University of California Davis has an excellent new publication "**Integrated Pest Management for Floriculture and Nurseries**". Over 80 experts contributed to the 422 page manual. It includes over 300 high quality color images plus many excellent drawings. Comprehensive coverage of arthropods, diseases and weeds. It is available for only \$38.25 by calling 1-800-994-8849 or through their internet site: <http://anrcatalog.ucdavis.edu>

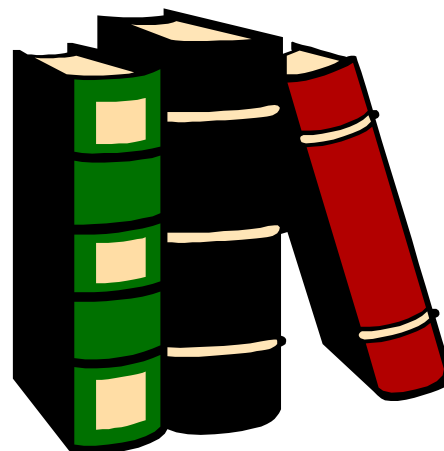
The Delaware Solid Waste Authority has a new brochure describing their unwanted pesticide disposal program -- the "**Household**

**Hazardous Waste Collection.**" To get copies of the brochure, call 1-800-404-7080. This collection is for small businesses as well as residents. The new brochure has a section addressing Conditionally Exempt Small Quantity Generators. For more details, go to: <http://www.dswa.com/>

**HORTICOPIA® Professional.** With 21,000 high quality, full color photographs and data for 8,700 ornamental plants, the Professional is the most comprehensive horticultural CD-ROM reference available to the green industry.

A trademark of HORTICOPIA has been its Garden Workbench® that allows users to select plants by common and botanical name or by one of over 200 attributes such as hardiness, height, bloom time, or growth rate. New features of the Garden Workbench include an integrated woody and herbaceous library, a favorites menu, botanical name synonyms, and easy to use toolbars. Professional users can now preview and print plant lists, information sheets, picture sheets, or design a custom print document for landscape proposals or garden center signage. Additionally, electronic documents in Adobe Acrobat ® format can be created for email.

More information on all HORTICOPIA products is available at [www.horticopia.com](http://www.horticopia.com) or by calling 1-(800)560-6186.



# Pesticide News

## **Disposal of Pesticide Containers and Unwanted Pesticides**

Pesticide Container Recycling:  
Sussex Conservation District Maintenance Yard  
Shortly Road, Georgetown  
Collections from 9:30 am – 1:30 pm. Free!  
All containers must be properly rinsed.  
June 21, July 19, August 16, September 20,  
October 18

Questions? Call DDA at 302-739-4811 or 800-282-8685

The Household Hazardous Waste (HHW) collection program is open year round at the following DSWA facilities:

### **New Castle County**

First Sunday of:  
March, July, and November  
Delaware Recycling Center  
1101 Lambsons Lane, New Castle  
Off of Rt. 9 North

First Saturday of:  
April, August, and December  
Pine Tree Corners Transfer Station  
Rd. 25 Townsend  
One mile off Rt. 13

### **Kent County**

First Saturday of:  
January, May, and September  
Cheswold Collection Station  
Rd.153, Cheswold

### **Sussex County**

First Saturday of:  
February, June, and October  
Southern Solid Waste Management Center  
Route 20, Jones Crossroads

HOURS FOR ALL COLLECTION FACILITIES ARE 8AM – 3PM  
Citizen's Response Line – 1-800-404-7080

What to bring to a collection site:  
Product containers marked with the words.  
“Warning: Hazardous, Flammable, Poisonous, Corrosive, or Explosive.”

### **GARDEN/YARD**

fungicides  
herbicides  
pesticides  
pool chemicals

### **HOUSE**

full aerosol cans  
bleach  
chemistry kits  
nail polish, polish remover  
perfumes  
disinfectants  
drain cleaners  
floor wax  
mercury thermometers  
moth balls  
oven cleaner  
smoke detectors  
spot remover  
toilet cleaner

### **AUTOMOTIVE**

antifreeze  
auto batteries  
degreasers  
waste fuels  
(gasoline/kerosene)  
used motor oil  
mixed other fuels

### **HOME HEALTH CARE**

prescription medication  
used syringes

## **EXPLOSIVES**

ammunition  
firecrackers  
gunpowder

## **WORKSHOP**

corrosives  
paints (not latex)  
small compressed gas cylinders  
solvents  
stains  
strippers, thinners  
varnish  
wood preservatives  
fluorescent bulbs

### **What will not be accepted:**

- friable asbestos – accepted by appointment at the Cherry Island Landfill, fee. Call 764-2732
- non-friable asbestos – accepted by appointment at all DSWA landfills, fee.
- unknown substances – greater than 1 gallon or 8 pounds.
- radioactive waste

Over 104 tons of potentially harmful substances were collected for safe disposal from Delaware homeowners and small businesses in March thru November.

### **Insecticides:**

ACETAMIPRID – Aventis – A new insecticide being developed for use on cotton, citrus, grapes, apples, vegetables and ornamentals as a foliar spray and seed treatment. It will be sold under the trade names Chipco Tristar, Adjust, Pristine and Assail.

FURY (zeta-cypermethrin) – FMC – Registration is expected this spring on sweet corn and head, stem and leafy brassica crops.

HEXAGON DF (hexythiazox) – Gowan – Removed from their label the statement “Do not use this product on crops growing in greenhouses”.

MAXGUARD (bifenthrin) – Scotts – A new formulation used to control various insects in home lawns.

PLYON (chlorfenapyr) – BASF – EPA approved an application to register this new active ingredient for use on greenhouse grown ornamentals to control the following insect and mite pests: (spider mites, including two-spotted spider mite, broad mite, citrus budmite, cyclamen mite, and rust mite; worm pests, including beet armyworm, cabbage looper, and soybean looper; fungus gnats; and western flower thrips). (FR Vol. 66, 3-14-01).

RIMON 10EC (nonaluron) – Makhteshim – Agan – EPA received an application to register this new active ingredient to control insects on container grown ornamentals in greenhouse, shade houses and outdoor nurseries. (FR vol. 66, 4-4-01)

### **Herbicides:**

FINALE (glufosinate-ammonium) – Aventis – Removed from their label the control of certain woody species. Added to their label the usage on dormant bermudagrass, added aerial application and added use in greenhouses.

KERB (pronamide) – Rohm & Haas – Added to their label the usage on warm season grasses including zoysiagrass, centipedegrass and St. Augustine grass.

### **Fungicides:**

CONTANS WG (Caniothyrium minitana) – Prophyta – Received EPA approval for this new

bio-fungicide on a wide variety of field crops, vegetables and ornamentals to control *Sclerotinia* spp. It will be marketed in the U.S. by Encore Technologies of Minnetonka, MN, who were granted exclusive marketing rights. Must be applied to the soil at least 3 months prior to the outbreak of the disease. Applied soil incorporated.

HONOR (BAS-510) – BASF – A new fungicide being developed for usage on turf.

INSIGNIA (pyraclostrobin) – BASF – A new broad spectrum fungicide being developed for usage on turf.

LYNX (tebuconazole) – Bayer – Registration is pending for this fungicide on ornamentals.

MILSANAT – Olympic Hort Products – This is a new biofungicide that is an extract from giant knotweed used to control powdery mildew and botrytis in ornamentals. Registration is pending.

STATURE MZ (dimethomorph/mancozeb) – BASF – a new fungicide being developed for use on ornamentals to control phytophthora diseases and downy mildew.

SWITCH (cyprodinil/fludioxonil) – Syngenta – A new combination fungicide being developed for use on ornamentals to control botrytis, alternaria and brown rot.

SYSTAR WDG (thiophanate-methyl) – Regal Chemical – A new formulation for use on turf and ornamentals to control various diseases.

### **Miscellaneous:**

BASF –has signed an agreement for Scotts Co., to market Cygnus (kresoxim-methyl) fungicide and Sanmite (pyridaben) miticide in the U.S. in the turf and ornamental market.

## **Research Briefs**

### *Propagation:*

**Successful propagation of *Pennisetum setaceum* ‘Rubrum’ from cuttings.** Single node cuttings from culms were 2 ½ to 3 ½ inches in length with the node located ¼ inch from the bottom of the cutting. Three cuttings were taken from each culm. All nodes showed potential for successful propagation, but the nodes closest to the crown had a significantly higher percentage of rooting more adventitious roots. (B.A. Cunliffe, M.Hockenberry Meyer and P.D. Ascher)

Excerpted from *J. Environ. Hort.* 19(1):1-3, March 2001.

### *Greenhouse Production:*

**Subirrigated bedding plants with different fertilizers and growing media.** Subirrigated petunias and begonias were grown successfully with three different commercially available fertilizers in three different growing media. However, plants grown with P in the fertilizer solution had greater shoot dry weight, height, and shoot P levels than those grown without P. Begonias had more inflorescences with P in the fertilizer solution, while petunias flowered earlier without P. There were no visual nutritional deficiency or toxicity symptoms on plants grown in any of the treatments, although plants of both species grown without added P were smaller and their quality was reduced. The use of different growing media had little effect on plant growth or tissue nutrient content. (E. James and M. van Iersel)

Excerpted from *HortScience* 36(2):282-285, 2001.

**Lack of finished plant uniformity due to plug source.** This research supports the contention that a bedding plant grower who purchases plugs from different sources should be aware that cultural practices may influence plug performance in transplant or later stages of production. PGR recommendations do not always account for different seasonal growing temperatures, irradiance, and photoperiods. (J.S. Kuehny, A. Painer and P.C. Branch)

*Excerpted from HortScience 36(2):321-323, 2001.*

**Wildflower sod production in the greenhouse.** Wildflower sod can be grown successfully in shallow plastic containers using a soilless medium composed of flume sand (incinerated biosolids) and a commercial growing medium (metromix) at a ratio of 7 parts FS to 3 parts MM. Sod development, especially root growth, was enhanced by placing a 4-mil plastic barrier in the base of each container before seeding. (B.R. Roberts, H.F. Decker, K.J. Bagstad and K.A. Peterson)

*Excerpted from HortTechnology 11(2):194-198, April-June 2001.*

**Effect of dry and wet storage on the vase life of cut flowers.** Storage of flowers in water was beneficial only at temperatures above 50 F. However, wet storage did not prevent the respiration-related loss of vase life during storage at higher temperature. Considering the higher volume and weight of flowers transported wet, which translates into higher costs of transportation and handling, these data indicate that the industry should continue to transport flowers dry and should minimize losses by paying closer attention to maintaining proper storage temperatures and relative humidities. In circumstances where warmer transportation temperatures are unavoidable, wet storage will provide insurance against desiccation, and some

additional vase life. (J.C. Cevallos and M.S. Reid)

*Excerpted from HortTechnology 11(2):199-202, April-June 2001.*

**Comparing B-nine, Bonzi and Sumagic for size control of ornamental cabbage and kale.** Although substrate drenches of Bonzi (at 2 to 4 mg) and Sumagic (at 0.5 to 1 mg) produced compact plants for the retail and wholesale grower, the economic aspect in growing ornamental cabbage and kale must be considered. Method of application is an important consideration in determining the most cost-effective way of inhibiting plant growth. B-nine sprayed at 2,500 mg/L was effective in limiting stem elongation of ornamental kale cultivars and cost \$0.004 per pot as a single application or \$0.01 when sprayed twice. A Sumagic foliar spray of 16 mg/L was effective in inhibiting plant growth but would cost the grower \$0.04 per pot. Although more expensive, a Sumagic foliar spray of 16 mg/L resulted in both a smaller plant height and smaller plant diameter when compared to B-nine applied twice at 2,500 mg/L. (J.L. Gibson and B.E. Whipker)

*Excerpted from HortTechnology 11(2):226-230, April-June 2001.*

**Mulching reduces water use of containerized plants.** Adding either pine bark or sphagnum moss mulch to potted 'Impulse Rose; impatiens plants reduced the frequency of irrigations when the plants were small and had not yet reached canopy closure. Mulching had no effect on plant height or flowering. (V.I. Lohr and C.H. Pearson-Mims)

*Excerpted from HortTechnology 11(2):277-278, April-June 2001.*

**Seed treatment as a method of applying PGRs.** Cosmos seed soaked or primed with Bonzi reduced seedling shoot height but also reduced seedling emergence percentage (even greater is primed vs. soaked seeds). Soaking did not reduce height of marigold seed but priming reduced seedling height without reducing seedling emergence percentage. Seed treatment with Bonzi gave shorter-term growth suppression and less spread of the chemical in the environment than the growth medium applications. Seed treatment also eliminates the need for a fungicide seed coating treatment since Bonzi has significant fungicidal activity. (W.G. Pill and J.A. Gunter)

*Excerpted from J. Environ. Hort. 19(1):11-14, March 2001.*

*Container Production:*

**Multi-Pot Box System reduces water use.** Conventional container grown plant production systems have low irrigation water use efficiency because a significant portion of the irrigation water is lost between the spaced-containers when sprinkler irrigation is used. The Multi-Pot Box System (MPBS) effectively improved irrigation water use efficiency of the container-grown landscape plants compared to the other conventional production system. The MPBS has an important feature that captures and manages rain and irrigation water in the reservoir and later supplies it to the plants by subirrigation, reducing the irrigation demands and increasing rainfall effectiveness and irrigation water use efficiency. Irrigations for the MPBS can easily be automated and MPBSs can easily be transported to other locations. (S Irmak, D.Z. Manan, T.H. Yeager and C. Larsen)

*Excerpted from J. Environ. Hort. 19(1):4-10, March 2001.*

**Growth regulation of Russian sage.** Growth control from Cutless and Sumagic in the greenhouse, even when applied to large plants grown in 3.8 liter pots, appeared to be more effective and of greater persistence than under nursery conditions. This is possibly due to plants being watered more frequently in the nursery than in the greenhouse. (S.E. Burnett, G.J. Keever, C.H. Gilliam and J.R. Kessler Jr.)

*Excerpted from J. Environ. Hort. 19(1):24-28, March 2001.*

**Compost as a media amendment for container grown perennials.** Commercially available peat- and coir-based media could be amended with up to 50% organic compost generated from biosolids and yard trimming without decreasing plant quality of *Orthosiphon stamineus* (cat whiskers) and *Angelonia angustifolia*. Partially amending peat- or coir-based media may have positive economic consequences for commercial perennial production due to the rising costs of peat. (S.B. Wilson, P.J. Stoffella and D.A. Graetz)

*Excerpted from J. Environ. Hort. 19(1):37-42, March 2001.*

**Phytophthora found in irrigation water.** Phytophthora was isolated from recycled irrigation water in five of the six nurseries sampled. Nine Phytophthora species have been identified that are common in recycling irrigation systems in Virginia. The populations levels of some of these species were well over the threshold determined for Phytophthora in irrigation water, at least for a period of time in some nurseries. It is strongly recommended that growers who recycle irrigation water establish pathogen monitoring programs by sending water samples to accredited plant disease clinics, and keep water disinfection programs in place if irrigation water is found contaminated. (C. Hong)

*Excerpted from VNLA Newsletter, March/April 2001.*

**Fertility needs of selected perennials.** The pour-through method was used to measure electrical conductivity for a series of N treatments for 11 herbaceous perennials. Recommendations for growth under a low (150 ppm N), moderate (250 ppm N) or high fertility (350 ppm N) program are based on plant quality results at different N levels.

Low fertility:

*Heuchera* x 'Mt. St. Helen'  
*Phystostegia virginica*

Moderate fertility:

*Astilbe chinensis*  
*Campanula carpatica*  
*Coreopsis verticillata*  
*Perovskia atriplicifolia*  
*Veronica* x 'Goodness Grows'

High fertility:

*Gaura lindheimera*  
*Lamium maculatum*  
*Penstemon* x 'Sour Grapes'  
*Salvia nemerosa*

(H.L.Scoggins and R.D. Wright)

*Excerpted from VNLA Newsletter, March/April 2001.*

*Turfgrass*

**The effects of topdressing and N fertility on Zoysia sprigs.** Topdressing sprigs with native soil had a positive effect on establishment of 'Meyer' zoysiagrass sprigs, producing about 90% cover in 120 days. Whether other forms of mulch have a similar effect warrants future investigation. Conversely, high levels of N fertilizers (>3.75 g/sq.m/month) had little or no

effect on zoysiagrass establishment or tissue N levels than did low (<2.5 g/sq.m/month) levels. These data support previous findings that suggest that the N needs of 'Meyer' zoysiagrass are minimal. (M.D. Richardson and J.W. Boyd)

*Excerpted from HortScience 36(2):377-379, 2001.*

*Landscape*

**Extracting repellents from species not consumed by deer and rabbits.** So far researchers have been unable to formulate repellents that are effective at repelling deer and rabbits from species they would normally consume. They have extracted four chemicals they believe are acting as repellents in plants that are avoided by deer and rabbits (catnip, daffodil, iris and mint). But, these chemicals do not effectively repel deer and rabbits when applied to other more desirable plants. This could be due to other yet undiscovered compounds or due to environmental effects of moisture, temperature and light that might breakdown the repellents. (S.Ries, R.Baughan, M.G. Nair and R.Schutzki)

*Excerpted from HortTechnology 11(2):302-307, April-June 2001.*

**Biological control of the artillery fungus.** Strains of the fungus *Trichoderma harzianum* and the bacterium *Bacillus subtilis* were found to suppress growth of the artillery fungus on agar when their inoculation occurred simultaneously, or prior to, inoculation with the artillery fungus. The next evaluation should be in field trials. (E.A. Brantley, D.D. Davis and L. J. Kuhn)

*Excerpted from J. Environ. Hort. 19(1):21-23, March 2001.*

### **Managing euonymus anthracnose.**

Anthracnose of *Euonymus fortunei* is difficult to control, due in part, to fungicide resistance of the causal organism (*Colletotrichum gloesporioides*). Adequate anthracnose control may be achieved by alternating fungicides with different modes of action. The best results were obtained by alternating applications of Domain FL and Daconil 2787 with Zyban on biweekly intervals. (J.A. LaMondia)

*Excerpted from J. Environ. Hort. 19(1):51-55, March 2001.*

**New technology for weed control.** The Burch Wet Blade<sup>R</sup> is a new apparatus and method for managing vegetation. It allows for the selective applications of various fluids such as pesticides, growth regulators, biorationals, fertilizers, etc. to vegetation by causing a minute amount of chemical to be immediately absorbed into the vascular system of a plant at the moment the plant is cut by a rotary or other cutting blade. The system utilizes a specially designed blade that is connected to a closed liquid distribution system. The liquid formulation is brought into contact only with the bottom of the blade as the blade moves. Current experimental and/or commercial models include a heavy-duty walk-behind rough turf rotary mower, a fine-turf walk-behind mower, and a front or rear tractor mounted and boom arm mounted heavy duty right-of-way mower.

Research results to date on fescue suppression and brush control on highway and powerline rights-of-way show good results. Control of green ash, Virginia pine, blackberry and sweetgum has been excellent with several mixtures of woody plant herbicides. (W.A. Skroch, A.D. Worhsam and R.L. Wahlers)

*Excerpted from 1988 Proceedings, Southern Weed Science Society.*

## **Calendar**

**June 14-16** – American Horticultural Society. 2001 Great American Gardeners Annual Conference. Cleveland, Ohio. Contact: Mary Ann Patterson, (703)768-5700 x 121, e-mail [mpatterson@ahs](mailto:mpatterson@ahs). Org homepage <http://www.ahs.org>

**June 14** – Spring Plant Disease Identification Walk. Longwood Gardens Continuing Education, Spring 2001 Courses. #GS12001A, afternoon 1-4pm. Location: Acer Room/Outdoors (use business entrance) Fee: \$59. Address: PO Box 501, Kennett Square PA 19348-0501, fax: 610-388-9806. (No telephone registrations.)

**June 18-22** – Small Flowering Trees (week long certificate course). Longwood Gardens Continuing Education, Spring 2001 Courses. #OPF-101W, 9am – 5pm, plus special evening events, field trips, and some meals (optional exam June 22) Fee: \$259. Location: Visitor Center Auditorium (use main entrance). Address: PO Box 501, Kennett Square PA 19348-0501, fax: 610-388-9806. (No telephone registrations.)

**June 19, 20 and 22** – Greenhouse Growers' Short Course. Prince George's Cooperative Extension Office, Clinton, MD. Contact: Suzanne Klick, phone:(301)-596-9413.

**June 20-23** – Southeast Greenhouse Conference. Greenville, SC. June 20 – Industry Tour, June 21-23-Educational Session, June 22-23 – Trade Show. For more information call-1-877-927-2775, or E.mail: [www.sgcts.org](http://www.sgcts.org)

**June 21** – Maryland Nursery and Landscape Association, Inc. Field Day, Homestead Gardens, 743 W. Central Ave., Davidsonville, MD. Cost is \$45.00. Make checks payable and return to: Maryland Nursery and Landscape Asso., Box 18989, Baltimore, MD 21206. Checks MUST be in Association Office by Wednesday, June 13. After this date price is \$55.00. Sorry, no refunds, no fax, and no phone registrations.

**June 21** - Pesticide Container Recycling, Sussex Conservation District Maintenance Yard, Shortly Road, Georgetown DE, Collections from 9:30 am - 1:30 pm All containers must be properly rinsed plastic crop protection product containers. For more info, contact Grier Stayton or Bill Milliken, DDA, 302-739-4811; [www.usagrecycling.com](http://www.usagrecycling.com)

**June 26 – 27** - Pesticide Applicator Training and Exam, Delaware Department of Agriculture. For more information, consult <http://www.udel.edu/pesticide/Cal.htm>.

**June 27** – Container Water Gardening. Longwood Gardens Continuing Education, Spring 2001 Courses. #GB1701E, evening 7-8:30pm. Location: Acer Room/Waterlily Display (use business entrance) Fee:\$39. Address: PO Box 501, Kennett Square PA 19348-0501, fax: 610-388-9806. (No telephone registrations.)

**June 28** - Pest Walk from 9 am to 12 pm at UDBG, Newark, DE. Cost is \$10. Contact Susan Barton (302-831-2531).

**June 28** – Nursery Production Field Day. Edrich Farms Nursery, Windsor Mill, MD. Contact: Suzanne Klick, phone:(301)-596-9413.

**June 28** – Meet the Pests (Summer Workshop). Temple University, Ambler Campus, Ambler, PA Time 3:00 – 5:00 PM. For more information contact Montgomery County Cooperative Extension, 1015 Bridge Rd, Suite H, Colledgeville, PA 19426-1179, phone: 610-489-4315, Fax: 610-489-9277.

**June 29** – Spring Garden Pest Identification Walk. Longwood Gardens Continuing Education, Spring 2001 Courses. #GS1001A afternoon 1-4pm. Location: Acer Room/Outdoors (use business entrance/park in lower lot). (Optional field trip, date to be announced in class). Fee: \$59. . Address: PO Box 501, Kennett Square PA 19348-0501, fax: 610-388-9806. (No telephone registrations.)

**July 11-14** – American Association of Botanical Gardens and Arboreta Annual Conference: Pioneering the Connection Between People and Plants. Denver Botanic Garden, Denver, CO. Contact: AABGA, 351 Longwood Rd., Kennett Square, PA 19348; ph. (610)925-2500; Fax, (610)925-2700; url, <http://aabga.org>

**July 12-15** – American Horticultural Society, 2001 Youth Garden Symposium, “Children’s Gardens: Beyond the Boundaries.” Michigan 4-H Children’s Garden, Michigan State University, East Lansing, Michigan. Contact: Mary Ann Patterson, (703)768-5700 x 121, e-mail [mpatterson@ahs.org](mailto:mpatterson@ahs.org) homepage <http://www.ahs.org>

**July 14-18** – Ohio Florists’ Association Short Course. Greater Columbus Convention Center, Columbus OH. Contact: Ohio Florists’ Assn., 2130 Stella Ct., Ste. 200, Columbus OH 43215-1033; tel: (614)487-1117; fax 614-487-1216; [ofa@ofa.org](mailto:ofa@ofa.org); [www.ofa.org](http://www.ofa.org)

**July 17** - Weed Identification and Control from 4 to 6 pm at the Research and Education Center, Georgetown, DE. . Cost is \$10. Contact Susan Barton (302-831-2531).

**July 18** - Diagnosis & Control of Insects on Woody Ornamental Plants from 4 to 6 pm at the Research and Education Center, Georgetown, DE. Cost is \$10. Contact Susan Barton (302-831-2531).

**July 19** - Pesticide Container Recycling, Sussex Conservation District Maintenance Yard, Shortly Road, Georgetown DE, Collections from 9:30 am - 1:30 pm All containers must be properly rinsed plastic crop protection product containers. For more info, contact Grier Stayton or Bill Milliken, DDA, 302-739-4811; [www.usagrecycling.com](http://www.usagrecycling.com)

**July 20** – Fifth Annual Conference on Woody Plants, Scott Arboretum of Swarthmore College, Swarthmore, Pennsylvania. Co-sponsored by Longwood Gardens, The Morris Arboretum of the University of Pennsylvania, the Pennsylvania Horticultural Society, The Scott Arboretum, and Tyler Arboretum. Topics will range from the best plants to use in the landscape to pest control. Optional study tours available. To receive a brochure, call Longwood Gardens at (610) 388-1000 ext. 507.

**July 20-22** – International Lawn, Garden & Power Equipment Exposition, Kentucky Exposition Center, Louisville, KY. Phone: 1-800-558-8767, <http://expo.mow.org>

**July 22-25** – American Society for Horticulture Science. Sacramento, CA. contact: ASHJS, (703)836-4606, Fax: 703-836-2024, e-mail: [ashs@ashs.org](mailto:ashs@ashs.org) homepage <http://www.ashs.org>

**July 24** – Pond Management Evening Program. CMRC, Ellicott City, MD. Contact: Suzanne Klick, phone:(301)-596-9413.

**July 24-26** – PANTS, Ft. Washington, PA, contact: (610)544-5775

**July 26** – Green Industry Professional Field Day & Trade Show, American University, Washington, DC, Contact: NVNLA.

**July 26-28** – Association of Professional Landscape Designers, Summer Conference, Louisville, KY; contact: (630)579-3268, Email: [info@apl.org](mailto:info@apl.org) [www.apld.org](http://www.apld.org)

**July 29 –August 4** – Perennial Plant Symposium, Hyatt Regency, Crystal City, VA. Contact: Perennial Plant Asso.

phone:(614)-771-8431, Email: [ppa@perennialplant.org](mailto:ppa@perennialplant.org)

**August 2-5** – SNA 2001 – Southern Nursery Association Researcher’s Conference and Trade Show. Georgia World Congress Center, Atlanta, GA. Contact: SNA (770)953-3311; Fax (770)953-4411; SNA Infoline, (770)953-4636; <http://www.sna.org>

**August 7** – Cut Flower Growers, TBD. Contact: Suzanne Klick phone:(301)596-9413.

**August 8** – Cut Flower Growers Tour. Location: Tour operations in Central and Northern Maryland. Contact Suzanne Klick (301)596-9413.

**August 14-15** – Conference, “Invasive Plants: Taking Action on All Fronts,” Morris Arboretum of the University of Pennsylvania, Philadelphia. Sponsored by the Mid-Atlantic Exotic Pest Plant Council and 27 other partners. Event brings together experts from the front lines of research, the green industry, policy, funding, education, and on-the-ground management. For information, call 215-247-5777, ext. 156 or 125 or e-mail [jlm@pobox.upenn.edu](mailto:jlm@pobox.upenn.edu)

**August 15** - Landscape Tour from 9 am to 12 pm at sites in Kent County. Cost is \$10. Contact Susan Barton (302-831-2531).

**August 16** – Summer Turf and Nursery Expo, Garrison Lake Golf Course, Smyrna, DE. Contact Val Budischak (888-448-1203).

**August 16** - Pesticide Container Recycling, Sussex Conservation District Maintenance Yard, Shortly Road, Georgetown DE, Collections from 9:30 am - 1:30 pm All containers must be properly rinsed plastic crop protection product containers. For more info, contact Grier Stayton or Bill Milliken, DDA, 302-739-4811; [www.usagrecycling.com](http://www.usagrecycling.com)

**September 17** – Ornamentals Research Expo from 4-8 pm at UDBG, Newark, DE. Cost is \$25 (includes dinner). Contact Susan Barton (302-831-2531).

**September 20** - Pest Walk from 9 am to 12 pm sites in Kent County (departing from Kent County Extension Office). Cost is \$10. Contact Susan Barton (302-831-2531).

**September 20** - Pesticide Container Recycling, Sussex Conservation District Maintenance Yard, Shortly Road, Georgetown DE, Collections from 9:30 am - 1:30 pm All containers must be properly rinsed plastic crop

protection product containers. For more info, contact Grier Stayton or Bill Milliken, DDA, 302-739-4811; [www.usagrecycling.com](http://www.usagrecycling.com)

**September 24 – 30** – Bedding Plant International Conference, Hyatt Hotel, Baltimore, MD. Contact: Kathy Miller (Bluemount Nursery) (410)329-6226 or Mary Mycka (Bedding Plants International), 1-800-647-7742.

**September 25, October 2** - Identification & Control of Diseases on Woody Landscape Plants from 4 to 6:30 pm in Fischer Greenhouse, Newark, DE. Cost is \$25. Contact Susan Barton (302-831-2531).

**September 27-29** – Thirteenth Conference on Restoring Southern Gardens and Landscapes – Cultivating History (Exploring Horticultural Practices of the Southern Gardener), Old Salem. Location: MESDA Auditorium in the Frank L. Horton Museum Center, 924 South Main Street, Winston-Salem, North Carolina. Registration fee: \$250 per person, student fee \$185. For more information contact: Kay Bergey, Conference Registrar: (336)721-7378, Fax: 336-721-7335.

**September 30-October 3** – Eastern Region International Plant Propagators’ Society Annual Meeting. Lexington, KY. Contact: Margot Bridgen, 26 Woodland Road, Storrs, CT 06268, phone (860)429-6818, e-mail: [mbippser@neca.com](mailto:mbippser@neca.com)

**October 18** - Pesticide Container Recycling, Sussex Conservation District Maintenance Yard, Shortly Road, Georgetown DE, Collections from 9:30 am - 1:30 pm All containers must be properly rinsed plastic crop protection product containers. For more info, contact Grier Stayton or Bill Milliken, DDA, 302-739-4811; [www.usagrecycling.com](http://www.usagrecycling.com)

