Volume 22 Issue 2 Summer 2007

In This Issue

Editor: Susan Barton, Extension Specialist, University of Delaware
The DNLA Newsletter is produced with the assistance of University of Delaware Cooperative Extension.

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

Greetings! The season got off to a rather sluggish start, but now it's full steam ahead. Hope you'll manage to come up for air in time for the DNLA's annual Summer Turf &Nursery Expo. The show will be held at a NEW location this year – Baywood Greens in Millsboro, DE. The date – August 15th.

Featured talks at this year's event include a Hort Tour led by Warren Golde. Warren is Director of Horticulture at Baywood. Baywood plants thousands of annuals and perennials each year. The tour will be a treat for all. The Expo will also feature a visit to Baywood's composting operation; a discussion of the landscape problems associated with construction; a weed identification challenge; and a pest walk. Hope you can join us!

At the March DNLA meeting, the board of directors voted to become a partner in the American Nursery & Landscape Association's Lighthouse Program. The DNLA will join 40 other state associations in supporting this program. The Lighthouse Program is the green industry's political education and grassroots network. "The guiding philosophy behind the Lighthouse Program is simple: it makes sense for state associations and ANLA to partner on national issues." In 2006-2007 the program saw "intense grassroots activity on comprehensive immigration reform and overhaul of the H-2A and H-2B temporary worker programs." Lighthouse participants are also active on other issues such as research funding and the 2007 Farm Bill. We're pleased to be part of this network!

REMINDER: Please keep our 2007 Landscape Awards program in mind throughout the upcoming season. We encourage any member to submit an entry. More information will follow in late August.

Welcome New Members:

Autumn Hill Patio & Landscape
Ryan Coyne
1912 N. Scott Street
Wilmington, DE 19806
(302) 293-1183

Scott & Sons Landscaping
Scott & Janie Shubert
1133 Iron Hill Road
Delmar, DE 19940
(302) 846-3122

U of D NEWS
Susan Barton, Extension Specialist

Livable Plants for the Home Landscape hit the streets at Ag Day this year (April 28). The publication addresses 10 environmental areas found in many home landscapes (such as sunny slopes, dry shade, pond edges etc.) and suggests plant combinations that will work well in those areas. Illustrated by lots of landscape photos, it is intended to help homeowners figure out what to do with their landscapes. Garden centers and landscapers may find these publications useful with customers. Copies are available from your county extension office, the Department of Agriculture, Delaware Center for Horticulture, Mt. Cuba Center and Delaware Nature Society. Or you can print it from the web by visiting the Cooperative extension ornamental horticulture index page: http://ag.udel.edu/extension/horticulture/index.htm.

The University of Delaware and St. Andrews School are continuing to work on a collaborative research grant that includes sustainable landscape projects. Leslie Carter, UD recent graduate is doing an internship at St. Andrews this summer. She is removing invasive plants, planting a rain garden, landscaping the edge of a meadow and redesigning a courtyard space that currently contains roadways to become a pedestrian-only space. Amy Sprinkle, a UD graduate student is leading EcoQuest, an environmentally oriented day camp to teach children about sustainable agriculture and landscape practices.

The University of Delaware Botanic Gardens Advisory Board convened for the first time in early June. This group, which consists of UD faculty, UD professionals, local public horticulture leaders and members of the nursery and landscape industry will advise the UDBG staff (John Frett, director; Melinda Zoehrer, program coordinator and Valann Budischak, volunteer coordinator). The UDBG is a great resource for the nursery and landscape industry. Spring and fall plant sales introduce Delawareans to many new plants, expanding the palette of what you can grow and sell. Industry members are welcome to take cuttings from the garden--just make an advance appointment with John Frett or Melinda Zoehrer. Bring your clients to the gardens to observe mature specimens of plants you recommend. The UDBG plays a key role in the Ornamentals Research Expo—an annual meeting in September that shows industry members what is happening at the University and offers a chance to try out good plants that are just not currently available in the trade. Visit the UDBG website to learn more: http://ag.udel.edu/other_websites/udbg/index.html

Pest Walks for this summer are scheduled in all three counties:
New Castle – August 22, 5-7 PM, Mt. Cuba Center, Contact Carrie Murphy (302)831-0605
Kent – August 20, 5-7 PM, DSU campus, Contact Gordon Johnson, (302)730-4000
Sussex – August 15, part of the Summer Expo.

Work on your design skills - Chad Nelson and Jules Bruck, our new landscape design professors are teaching the following Landscape Design courses this fall:
Landscape Sketching (PLSC 167) on MWF from 12:20-1:20 and M 1:25 – 3:35
History of Landscape Design (PLSC 267) on MWF from 9:05 – 9:55
Basic Landscape Design (PLSC 322) on TR from 9:30 – 10:45 and R 1:25 – 3:25

Or maybe you want to work on Plant ID, try:
Herbaceous Landscape Plants on MWF from 10:10 -11
Broad-leaved Evergreens and Shrubs on TR from 8-9:15 and T from 1:25 – 3:25

Register as a continuing education student.

GARDEN SITE ANALYSIS- UNDERSTANDING MICROCLIMATES

Laura McDermott, Resource Educator
Washington County, New York

"In the real world we garden in microclimates – not hardiness zones". This is true of course, but it is more difficult to explain microclimates than to locate sites on hardiness zone charts and just follow the recommendations in catalogues.

Microclimates are certainly more useful, and with observation, they are not hard to identify. For most homeowners, the microclimates are quite small; one example would be a protected courtyard next to a building that is warmer than an exposed field nearby. Sometimes a microclimate may be extensive – like the long narrow microclimate that follows the coast line.

By closely observing phenological clues like the timing of flowering and when the leaves fall, as well as pure environmental indicators like when the snow melts, and comparing this with other areas in the landscape or neighborhood, it is possible to identify microclimates.

So what? Microclimates may allow for a little experimentation. If a garden is in Zone 6, but has a warmer microclimate in one portion you may be able to plant a few Zone 7 plants and see how they do. With just a little extra work in preparation for winter, you may be able to grow some plants that push the limits—the goal of many gardeners.

A warmer microclimate may indicate where to put the patio or grape arbor and where not to locate a sugar maple.

Editor's note: The UDBG has two protected courtyards with trials of many semi-hardy plants.

Adapted from Growline*, Vol. 14, No. 4.*

REPORT SHOWS TARGETING YOUNGER CROWD IS KEY TO INDUSTRY'S FUTURE

Has gardening become less relevant to today's consumer? That is a question Atlanta-based marketing research company StandPoint Inc. is trying to answer.

Standpoint, along with Swanson Russell Associates, Lincoln, NE, a full-service marketing communications agency that specializes in the green industry, recently released the 2006 Grapevine Survey.

Since the last Grapevine Survey was conducted in 2000, annual retail gains in the lawn and garden industry have slowed, according to the report. Households are committing fewer discretionary household dollars at the local garden center. Today's garden center is faced with having to target other market segments to sell goods and services. Business models need to be tweaked or changed in order to remain competitive in a changing industry environment, the report stated.

However, Jim Matya, vice president of Swanson Russell Associates, said the results of the 2006 Grapevine Survey easily could be misinterpreted.

"At first glance, some of the trends appear discouraging, yet significant opportunities still abound," Matya said in the report. "What is clear is that the gardening consumer has changed. In the future, reaching and engaging new consumer segments will be paramount. As the baby boomers age, they are pulling back on do-it-yourself (DIY) activities. Younger homeowners are redefining what it means to be a 'gardener.' Based on what I have read, the green industry will experience significant change in the next five years."

The 2006 Grapevine Survey largely is based on responses generated by members of the Grapevine consumer panel. The panel reaches more than 2 million US households that have provided information on their purchases and participation in various activities, including gardening and landscaping, the survey stated. Also, eight focus groups were conducted nationwide, and 600 consumers were interviewed for the survey to gauge national trends. All interviews were conducted online, and data were collected in June 2006.

StandPoint president Kip Creel said in the 2006 Grapevine Survey that gardening still is a very popular pastime. According to the latest National Gardening Survey, conducted by the National Gardening Association, 89 million households made a purchase from at least one lawn and garden category in 2005. Categories include seed/bulbs, nursery products, indoor houseplants and supplies, watering equipment, outdoor living and barbecue, fertilizer, insect controls and chemicals, soil amendments and mulches, floral products, garden tools, food preservation supplies, outdoor power equipment, plant containers, gardening information and lawn and landscape services. According to the latest US Census results, there were approximately 110 million households in the US, giving gardening purchases nearly 81 percent household penetration. However, according to the 2006 Grapevine Survey, in 1999, the percentage of US adults identifying gardening as a hobby peaked at 15 percent; in 2004, this declined to 5 percent. These changes can be attributed to certain demographic anomalies, namely the baby boomers and their changing values as this generation ages.

The 2006 Grapevine Survey shows homeowners between the ages of 25 and 40 have different attitudes about gardening than their parents did at their age. This group seems more interested in using available discretionary dollars for activities other than gardening, such as travel or other leisure-related activities.

According to the 2006 Grapevine Survey, retailers can attract young homeowners to their garden centers by:

- De-emphasizing gardening, which implies work and hobbyist activities, and emphasizing exterior home improvement, home décor, landscaping and outdoor living;
- Adopting more youthful and contemporary positioning -- "this is not your grandmother's garden center";
- Emphasizing product categories outside of plant material;
- Communicating the center's expertise and that it is a one-stop shop for pulling all elements of the outdoor space together;
- Emphasizing convenience shopping locally-owned garden centers over big box stores;
- Emphasizing the uniqueness of your products and ability to find items that reflect your personal style – key motivators for today's consumer;
- Being at the forefront in promoting new and innovative products; and
- Hitting the right price point.

"With change comes challenges and also great opportunity," Jack Davis, vice president of sales and marketing for Horticultural Marketing & Printing, Mesquite, TX, said in the report. "It is important to accept that the green industry is a consumer product's industry. …Understanding the changing wants and needs of the end consumer is critical."

For more information on the 2006 Grapevine Survey or to obtain a copy, call StandPoint at (404)728-9374 or visit www.standpointgroup.com/HGresearch.html.

Excerpted from American Nurseryman*, April 15, 2007.*

A CONVENIENT TRUTH
Bob Dolibois, Executive Vice President
ANLA

The introduction of the keynote speaker included a caution to the audience: Listen carefully, keep an open mind, and draw no conclusions until the end. As it turned out, no caution was necessary.

He started with a history lesson. It seems that until the industrial revolution came along, there was a simple ethic regarding the use of natural resources: Use what is needed, when it is needed, but leave no problems for the next generation to solve.

The industrial revolution changed that ethic. People moved off the land and into the cities. Succeeding generations began to create their own environment rather than living within the rules of the natural environment. Stewardship became domination and the economic model became more about affluence than effluence. Over time, we began to assume that there was a zero-sum game between affluence and effluence, between growth and stewardship in the old manner.

Is that it? Can we only assume that economic growth comes at the expense of the natural environment? The speaker suggested otherwise.

His name was William McDonough. His presentation was to the 1,000+ industry participants at the American Nursery & Landscape Association's 2007 Management Clinic. It was a special moment when, for many in the audience, the arguments about environmental degradation and global warming morphed from dire warnings issued – or disputed – into a discourse about solutions that meant something to everyone.

McDonough's thesis is intriguing, multi-faceted and exceeds the limits of this column to fully explain. The following are a few touch points:

- McDonough takes a meat-and-potatoes approach to the concept of sustainability, defined as "the ability to continue a defined behavior indefinitely."
- The industrial revolution model of "takes, makes and wastes" is correctable through intelligent redesign of the processes that manufacture and sustain the products and services of the modern industrial world.
- The "waste" part of the model has led to regulation that's costly and that ultimately results, at best, in processes that are "less bad" – but bad nonetheless. (Hence, regulation is basically evidence of a design failure. Get the design right so that waste is eliminated or transformed and regulation goes away … along with the gigantic, expensive bureaucratic machine built to regulate that waste.)
- Nature operates on a system of nutrients and metabolism. In a natural setting waste becomes food for something else. Modern thinking can adopt this principle by viewing the way we make things as either part of a biological nutrient cycle or a technical nutrient cycle.
- Successful practice of making things according to these two nutrient cycles means that future growth (part of which comes from this transformation process) becomes irrefutably "good" again.

In other words, we can once again look into our children's and grandchildren's eyes when they come home from a science class in which they have been taught the negatives of the future, instead of the positives. That change would be a good think for those teachers, too.

Here's the best part of all of this: Our industry fundamentally plants to the "good" side of the biological nutrient cycle, and with some changes

that need to be made anyway, we can also play to the good side of the technical nutrient cycle.

If this thinking is as intriguing to you as it was too many people attending the Management Clinic, here's what you can do:

1. Purchase and read a copy of Bill McDonough's book, *Cradle to Cradle.*
2. Consider the book a brief introduction to a fast-building trend called sustainability.
3. Log on to McDonough's Web site (www.bmdc.com) and read about more practical ways to think about your business practices. In all likelihood, it could save you some money and make some new friends out of old adversaries.
4. Watch this space as the industry embraces an inevitable future of some very convenient truths.

Bob Dolibois's column was reprinted from GROWERTALKS*, April 2007.*

BANKING AND INVESTING IN APHID CONTROL

Stanton Gill, Suzanne Klick, Shannon Wadkins and Julie Iferd

Aphids are among the most common pests of greenhouse crops. There are more than 4,400 known species of aphids worldwide, and as a group they attack a wide range of plant species. Though many aphids infest a limited number of plant species, the most common and problematic aphids found on greenhouse crops attack a very large number of plant species. On greenhouse crops in general, the two most common species by far are the green peach aphid, *Myzus persicae,* and the melon aphid, also known as the cotton aphid, *Aphis gossypii.*

Aphids feed by inserting their stylet mouthparts through plant tissue directly into the phloem and sucking on plant sap. Their feeding can cause plant stunting and leaf deformities. Large numbers of aphids can remove enough nutrients from a plant so that its vigor is affected. Their excrement coats leaves with a sweet, sticky substance called honeydew, which in turn promotes the growth of unsightly gray, sooty mold. Aphids can reduce the salability of a floral crop by the accumulation of the white cast skins that they leave behind as they molt and go to the next life stage. The combination of honeydew and cast skins created by an aphid infestation can be ugly.

The ability of aphids to reproduce without mating or egg production during most of the season and their rapid maturation rate can cause their populations to explode. The proportion of winged forms may increase as an aphid colony increases in age and size on individual plants.

Aphids can vary in their preference for host plants. Some aphids feed on a wide variety of hosts, but others are quite host specific. By knowing on which plant species aphids prefer to

feed, you can decide where to use banker plants with parasitoids to keep the aphid population in check.

The idea behind banker plants is to grow a plant that you can infest with insect species that only feed on the host (banker plant). These host-specific insects won't move over to greenhouse ornamental crops. Once you have a good population of an insect species specific to the banker plant, you can introduce your favorite parasite or parasitoid. Let the parasite or parasitoid lay eggs in or on the insects feeding on the banker plants. Using the method, you can build up the population of beneficial and end up with healthy, fresh parasites or parasitoids that emerge from the dead bodies (mummies) of the aphids from the banker plant and will then search throughout a greenhouse looking for aphids in your greenhouse growing area.

In our trial at Catoctin Mountain Growers, we used barley plants in 6-in pots and then introduced bird cherry oat aphids, *Rhopalosiphum padi.* The aphid parasitoid, *Aphidius colemani,* was established on the barley plants with the aphids. *A. matricariae* and *A. ervi* are other commercially available parasitoids. The green peach aphid, *Myzus persicae,* was the most common problem on chrysanthemums and pansies at Catoctin Mountain Growers. Melon aphid is occasionally a problem on these crops.

Plants that normally attract aphids are pansies, verbena, zinnias, salvia, dahlias and mums. We can see aphids fairly early in spring on pansies, but the warmer it is the faster they build up and aphids become a bigger problem in late spring and summers. With biological control on aphids the result is less spraying and less exposure to pesticides. For biological control of aphids to work, the following issues must be addressed:

1. Biological control must be cost effective, no more expensive than the cost of chemical control.
2. Biological control must be consistent at controlling aphids to an acceptable level (zero), especially during high insect pressure situations.
3. Chemicals used on other plants in the greenhouse rotation (i.e. for thrips) might not be compatible with the wasps or banker aphids.

Here are the steps for aphid control if you want to try:

1. Determine your crops with the highest aphid pressure.
2. Purchase barley seed from your local farm supply store.
3. Start barley seedlings in 288 (or a similar size) plug trays.
4. Transplant three barely plugs into 6-in. pots.
5. Purchase banker plants from a beneficial supplier.
6. Plant one banker plant in the center of each pot.
7. Wait for bird cherry oat aphid populations to build.
8. Place four of the pots in each 10,000-sq. ft. area.
9. Apply 500 or less *Aphidius* for every four banker plants.
10. Monitor your crops for both live and parasitized aphids.

Adapted from GROWERTALKS*, April 2007.*

LANDSCAPE BED PREPARATION 101
Dan Riddle, Lodi Farms Ltd.

Preparation of landscape planting areas is the second most important step in landscaping. (The most important is a well-thought out plan.)

To get an area ready for planting, first remove all unwanted vegetation, rocks and debris. This can be as simple as pulling a few weeds that have grown while your customer was busy deciding what to plant, or as complicated as multiple application of herbicides and heavy earth moving equipment.

If the area is currently lawn, remove the sod and upper 1-2 inches of roots. If the area is small, this can be done with a sharp spade or sodlifter (tool with an angled handle that allows you to lift sod from a standing position). If the area is large, use a sod cutter and/or skid loader.

Next, analyze the soil. The health (or lack thereof) of existing plants can be a good indicator of soil condition. It is usually a good idea to take one soil sample from each distinct garden area and send them to a soils lab. Be sure to take samples early in the process to allow time to receive the results prior to starting the job.

In general, most new homes have "subsoil" in the planting areas. The topsoil that may have been there once is long gone. Whether you have sand or clay, you will need to amend.

Look at the elevation of the area. If the planting bed is next to the house, is there room to add 4 inches of soil amendments and top off the area with 2-3 inches of mulch? Remember, you must keep the grade at least 4 inches below any siding, and the slope should be such that water will drain away from the house. Now is the time to remove soils or do any necessary regrading.

Now comes the hard work! Loosen the subsoil to a depth of at least 4 inches in order to add the amendments. The easiest and most common way to loosen the soil is with a rototiller. If you have sandy soils, this will be easy. If you have clay, get ready to work. Rototilling at right angles will make this easier and more effective. Leave yourself lots of room when working with rototillers next to air conditioners, siding and windows. Loosen these areas, as well as smaller areas, by hand with a spade or soil fork.

If you are forced to do bed preparation during a dry spell, you may need to give the soil a deep watering a few days in advance. Water will soften the clay and make it easier to work. Be careful not to get it too wet. You can't work waterlogged soil or you will destroy its structure.

After the soil has been loosed to a depth of 4 inches, spread the soil amendments. Compost is the most common and effective amendment. If you are planting acid loving plants such as Rhododendron, Holly, or many dwarf conifers, add Canadian peat as well.

Add 3 inches of compost over the entire planting bed, rototill the area again, rake smooth and top off with an inch or so of compost. This will give you 8 inches of great soil for your new plantings.

After planting, use a layer of shredded bark over the entire bed to help retain moisture, prevent weeds and give that "finished look". Mulch should be used as a temporary ground cover until plants grow in and fill out the landscape bed.

These steps will pay off by providing a sustainable landscape for your customers, who will spend less time weeding and more time enjoying their healthy plants. Installing a

landscape without proper bed preparation will result in unhappy plants and unhappy customers. The plants may live beyond the warranty period, but they won't thrive.

While this procedure makes a huge different in plant health and sustainability, most contractors do not include bed preparation in their landscape jobs. Do yourself and your customers a favor and start selling bed preparation as a part of every planting project!

How much compost will I need?
Take the total square footage (length x width) and divide by 27. This will give the total cubic yards needed for 12 inches. Next, divide by 3; this will give you total cubic yards needed for 4 inches across the entire area.

How much mulch will I need?
Take the total square footage (length x width) and divide by 27. This will give the total cubic yards needed for 12 inches. Next, divide by 4; this will give you total cubic yards needed for 3 inches across the entire area.

Do I really need to do all of this?
Think about a painting job. If you fail to prepare the surface that you are painting, the paint will peel off or rust will come through the newly applied finish.

What am I trying to do!
You are trying to recreate conditions that would naturally occur where the plants would grow without your help. The closer that you can get to this, the less maintenance you will need and the better your plants will perform.

Adapted from The Michigan Landscape*, April 2007.*

WHAT'S NEW IN PERENNIALS
Laurel Christensen, Northfield Farms Inc.

Perennial plants offer immediate, interesting, and rewarding results for even a novice gardener. Many new plants have been recently introduced and it seems to be these that are driving interest – and sales – at many garden centers.

If it's new, is it good? As professional perennial growers, what should we grow? As new plants are introduced, we trial them for a year or so to find out a couple of things. One – can we produce it reliably in a container and end up with product that is good-looking enough to sell itself at the garden center? And, two – is it a good garden plant? What happens to it after planting? Does it live over the winter? Does it go to seed everywhere and have the customer cursing us in a year or two? Do its roots pop up over there on the other side of the driveway? Does it bloom, then flop? Get disease? Attract beetles? So, should we promote this one? For instance, how many *Coreopsis* 'Limerock Ruby' are we all growing in Michigan these days?

It has also been part of my experience that plants that grow beautifully and happily in the rarified conditions of the container nursery can be very different performers in the garden. For instance, while *Astilbe* may make a gorgeous container plant, and indeed is a very garden-worthy plant as well, some gardeners report that it shrinks in the ground every year before disappearing. This is usually due to the fact that *Astilbe* is not terribly happy without wet feet, doesn't like tree root competition, burns up in the sun, and can be a heavy feeder – in other words, 'perfect' for the container nursery. On the other hand, the opposite can also be true – great garden performers like *Dictamnus* can be notoriously difficult to container produce. This other situation leads to potentially great garden plants in ugly condition languishing unsold on store

shelves because – lets face it – beauty sells.

So, when customers ask me that question, "What's new and different in perennials?" What do they really want to know? Just making conversation? Are they looking to expand their personal knowledge of botany? Are they asking me what I think their customers will be asking for this year? Are they trying to arm themselves for this inevitable question from their customers? Do they want to know what will be available this year for promotion to their clients? Hey, we have been talking for years about how sick we all are of 'Stella D'Oro' daylilies, but let me tell you, overall sales of Stellas have not slowed one bit. What is a better garden performer than a Stella? No, I want the 'next' Stella, the one that grows and performs like Stella and will wow the clients, but that my customers aren't sick of. Shouldn't we really be asking, what is a 'good' perennial that won't disappoint me after I plant it?

So, what's a good perennial? It depends a lot on the person's individual taste and individual garden conditions, but one could make a few sweeping generalizations that most people would agree on. My criteria for a 'good' perennial would include:

- Good show of flowers
- Minimal amount of maintenance required (pruning or shearing after flowering is a given and may result in rebloom; but let's not have daily sprayings)
- Survives over the winter
- Clump increases in size each year without invasiveness
- Seedling production is manageable
- Good looking foliage
- Not floppy or sloppy

That being said, once we have a 'good' perennial in mind, the other problem to solve is how to produce it reliably and in such condition that it will look pretty in a container. This, however, is a totally different question than whether the plant is garden-worthy or not.

In answer to the question, "What's new?" I would prefer to answer, "What's good?", and mention plants that I think deserve to be planted more widely due to their good garden performance. As always, I welcome your comments and opinions on the subject. I hope these worthy perennials will not disappoint you, and that at least some of them are 'new' to you!

Aconitum fischeri is a great choice for those who love Delphinium without the fuss. Easily grown in shadier conditions, the bloom is a phenomenal deep blue very late in the season when not much else is blooming. Blooms with the mums and will stand up to a frost. Spikes can be three feet tall and showy, and the plant makes a nice clump over time of highly glossy, delphinium-like foliage. It looks attractive all year and the late bloom is a definite plus.

Allium senescens 'MaryBegle'. I got this plant many years ago from my good friend Mary Begle. It is an unidentified variety of *Allium senescens,* but differs from the common type that I have seen in the trade by virtue of having more compact and upright foliage with better substance. The plant looks good all season and forms a nice tight clump with little or no maintenance. Showy purple flower clusters appear in early summer and the plant is very reliable. Full sun to part shade and average water.

Astrantia major has interesting flowers in shades of pink, red, or white and is gaining in popularity. This plant likes a shadier condition and average water. It bloomed heavily in Michigan in late spring and continued to put out sporadic flowers most of the summer. Great long-stemmed cut flower. Not prone to pests and makes a good increase every year from the root. Foliage reminiscent of Geranium.

Baptisis australis, Wild Blue Indigo, is native to the United States and enjoying a surge in popularity. Varieties available include the common blue and also 'Purple Smoke' (purple), 'Carolina Moonlight' (pale yellow) and 'Alba' (white) as well as 'Twilight Prairieblues', the first bicolor with flowers of purple and yellow. This plant puts out a great show of flowers and will hold good foliage throughout the season. Trouble-free and a good choice in sun or part-shade areas with average or minimal irrigation.

Dicentra spectabilis 'Gold Heart' is the golden-leaved form of the Old-Fashioned Bleeding Heart. I didn't' think that I would like this plant when I heard about it but it makes a gorgeous glowing statement in the shade garden. It will hold its foliage well into the season if given adequate water, but does burn up if planted in even slightly too bright a location. Very pretty plant.

Dictamnus, or Gas Plant is a show-stopper when in Bloom. Flowers are large panicles of spicily fragrant pink or white. This one is hard to transplant reliably, so the supply is always questionable, but it is well worth the wait. Foliage is handsome all season and the plants make seed pods for added interest. Deadheading does not usually result in rebloom and viable seedlings are infrequent.

Epimedium is one of the most beautiful groundcovers that one could plant. Although some would consider it slow to establish, it won't make the invasive list and this could be a plus. The foliage is extremely attractive all year with the new growth and the fall color somewhat bronzy. Bloom is in the spring with numerous small flowers in shades of yellow, white, pink, or rose. Reliable and trouble-free in part shade. Should have some irrigation for best results, at least while establishing.

Geranium 'Rozanne' has hit the market in the last few years with the result of bumping other hardy Geraniums off of the shelves. This one truly is the next Stella with its very long blooming period. This plant was blooming in my test patch from mid-spring to fall seemingly effortlessly. I have seen some leaf spot problems in containers, but the planted ones did very well with no maintenance and minimal watering. This made a nice mass of medium foliage about a foot or so tall and was liberally sprinkled with large, showy blue flowers. The Perennial Plant Association has named it as the 2008 Plant of the Year. Hey, it's 'easy' and 'blooms all summer' – you will be seeing a lot more of it. Sun to part shade and average to minimal water.

Rudbeckia 'Herbstsonne' is also known as 'Autumn Sun' and maybe as "that tall stuff". I have been promoting this plant for a few years as a wonderful tall anchor in perennial beds. It easily grows to six feet or more and puts on a showy display of intense yellow flowers in the late summer through frost. Glossy foliage makes a handsome clump, full to the base, and not at all invasive. The plant is not affected by the unsightly Rudbeckia leaf spot that has moved into this area and has caused so many of us to stop planting 'Goldsturm'. Great to set off ornamental grasses. Maybe consider this instead of a shrub or small tree as a focal point. OK, it's not 'new', but it's really 'good'.

Salvia pretense 'Pink Delight' is a large-leaved Salvia with soft pink flower spikes. It is a little

coarser in texture than most of the Salvias, deadheading after the first blooms fade will encourage more flowers. A sunny area with average water works well. Salvia can easily be over watered.

Stokesia 'Peachie's Pick' is a handsome and floriferous selection of Stokes's Aster that seems to sell out immediately whenever we have them. The flowers are an intense purple and the plant is compact. Good performer in a sunny, well-drained spot with adequate water. I also like 'Honeysong Purple' and 'Klaus Jelitto'.

Veronica 'Waterperry Blue' is a fantastic prostrate groundcover that always seems to look good. Foliage is small, triangular and glossy, held close to the ground. Smothered in numerous light blue, dainty flowers first thing in spring and sporadically thereafter throughout the summer, with the fine-textured foliage turning purplish in the fall. Covers ground well without being scary. Sun to part shade and average water.

Excerpted from The Michigan Landscape™*, May 2007.*

CREATIVITY IN DESIGN: EDGES

Robert E. Schutzki, Department of Horticulture Michigan State University

Creativity…There seems to be agreement that, no matter what the source, creativity stems from intuition, knowledge, experience, observation, awareness, and a lot of passion. Creativity is about: what we see and how we see it; what we think and how we process it; and ultimately, how we express (translate) our vision and thoughts into a composition.

Landscape design is about what we see and how we see it, what we think and how we process it and ultimately, how we express our vision and thoughts into a composition. As designers, we focus on the seeing, thinking and expression. Seeing is absorbing the overall composition and all of its finite parts. Seeing is observing the relationships between people and the site, structures and the site, spaces within the site, and elements that shape the spaces. Thinking is the analysis and synthesis of all that is assimilated about the client and the site. It draws upon our intuition, experiences, and knowledge. Thinking is exploration, generating ideas, weighing possibilities, and formulating solutions. Expression is the translation of thought into something concrete. Expression formulates the pieces and achieves the desired result through our attention to detail. Seeing, thinking, and expression transform a site into a creative masterpiece.

Design principles are the tools that we use to craft landscape character. Line, form, color, and texture are basic principles common to all design professionals, regardless of the purpose or medium in which they work. They aid in defining/describing our landscapes, refining the character of our rooms and most importantly, in developing our creative potential.

Edges have a particularly prominent role in

landscape design and are truly a study in the use of line, form, color, and texture. Edges appear in the landscape through the joining of contrasting forms, colors, and textures. Edges form lines through the union of plant with plant, plant with turf, plant with mulch, mulch with turf, plant with hardscape, hardscape with hardscape, and so on. Edges greet us and walk us through the landscape.

They control what we see when we enter a room, the sequence we see, and the way we move through a landscape both visually and physically. Edges help to outline the dimensions of the space by setting boundaries on the floors of our landscapes. These boundaries may highlight active and passive space, plant compositions or other features.

What purpose or overall intent does an edge serve in the landscape or in its specific location? Does it contribute to the character of the landscape or its individual spaces? How does it influence or contribute to our perception or impression of the landscape? Is the edge formal or informal, shaped with angular precision or flowing, distinct or subtle, harsh or soft? What is the primary design principle used in its development? Is it supported or further enhanced by the other design principles? Is the edge alone or does it work in concert with other edges? Does the edge or edges contribute to unity in the landscape? How does the edge lead us through the landscape, into or out of its rooms, to various levels in plant compositions, to its focal points or features? Do the materials used in formulating the edge work well together and reinforce the intent? Does the edge stand the test of time or will it lose its effectiveness? Do I have to maintain it or is it self-sustaining? These are a few questions for us to consider when developing our edges or analyzing the edges in other landscapes. There are tremendous lessons to be learned by letting ourselves walk visually or physically through the landscapes around us; examining the lines, forms, textures, and colors associated with edges and assessing their contributions and influence on landscape character.

Plant to plant edges are formed through differences in forms, textures and colors. Contrasting plant sizes, foliage textures, and flower colors not only provide interesting ornamental displays, but set edges that move us through compositions. Colorful annuals or perennials adjacent to evergreen groundcovers, hedges serving to frame perennial displays, and shrub masses bordered by strips of herbaceous perennials or groundcovers create commonly found plant to plant edges in the landscape.

Plants and turf edges combine contrasting forms and colors. Our eyes pick up the edge and move along the straight or flowing lines. Plant to turf edges often take a leading role in moving us through the landscape. Interesting contrast in form can result from annuals, groundcovers, or perennials emerging from the low profile of a fine textured carpet of turfgrass. In addition, the rounded forms of groundcovers such as wood aster, barrenwort or plumbago provide a subtle softness to the edge.

The plant to mulch edge is usually defined by the contrasting colors of green and brown. There are situations where the contrast between the brown (or other color) of mulch and the green of foliage works well and situations were it does not. A situation where it doesn't work is usually due to the ratio of green to brown. The separation between the foliage of two different plants or between plant foliage and the turf edge may leave a little too much brown and contribute to an unfinished or an incomplete appearance. The quality of the mulch to turf edge can also make or break the visual appearance of a landscape. The crispness of the turf edge has a lot to do with perception of the line. A ragged turf edge will have poor visual

appeal and will detract from the rest of the landscape.

Plant to hardscape edges are a natural. There are many examples where plants are complemented by hardscape and hardscapes are complemented by plants. The plant to hardscape edge can be manicured, wild, or anything in between. Low growing perennials along a brick walk provide a sculpted appearance; perennials up to a gravel path give a rounded pillow form; and grasses blowing over a boardwalk provide a wispy combination. Each of these combinations adds character and ornamental appeal to the landscape edge.

A classic example of edges formed by the union of hardscape with hardscape is the border or soldier course along a walk or patio. The edge formed by contrasting shapes and colors aids in defining and highlighting the hardscape areas and corresponding planting beds. The same can be said for the curbs of contrasting stones along walks and patios.

Go out into the landscape and find examples of edges. Go through the compilation of questions mentioned above. Analyze the scenes, pick apart the characteristics, and consider possible material substitutions. Decide for yourself what works and what doesn't. Going through this exercise will reinforce your design skills. The more you look, the more you will find.

Excerpted from The Michigan Landscape™*, April 2007.*

THE RHODODENDRON COLLECTION AT TYLER ARBORETUM

Robert Herald, Plant Recorder
Tyler Arboretum

Encompassing 650 acres, Tyler Arboretum lies in the rolling piedmont of southeastern Pennsylvania –just 20 miles west of Philadelphia. One of the oldest arboreta in the United States, Tyler traces its horticultural history back to the 1940s when two Quaker brothers, Minshall and Jacob Painter, began to collect native and non-native plants. This early collection of trees, shrubs, vines, edible fruits, perennials, and annuals represented approximately 1400 taxa, and was part of Philadelphia's rich horticultural network that included Bartram's Garden and Peirce's Park (present-day Longwood Gardens). In 1946, Tyler's first director, Dr. John C. Wister, set out to build upon the Painter legacy, whereupon he created comprehensive collections representing conifers, magnolias, lilacs, cherries, hollies, narcissus, iris, peonies, daylilies and rhododendrons. Today, Tyler is best known for its impressive collection of rhododendrons.

Collection History

"The Rhododendrons already planted should make the Tyler Arboretum Rhododendron collection one of the outstanding collections of the country." Dr. Wister's 1963 statement is a clear declaration of his intention to build a nationally recognized rhododendron collection. Forty-three years later, his collection and efforts were formally recognized when Tyler Arboretum's rhododendron collection was awarded North American Plant Collections Consortium (NAPCC) status in 2006. Over the past 50 years, rhododendrons have been planted throughout the Arboretum with a current inventory of 2400 accessions of 783 taxa representing 78 species and their selections, 394 named hybrids, and 311 unnamed hybrids. This large collection is integrated into various

Arboretum landscapes and gardens. Visitors may see rhododendrons incorporated within the Holly collection, Pinetum, Native Woodland Walk, North Woods, and Parking Lot Garden as well as the Wister Rhododendron Garden.

Initiated in 1953, the Wister Rhododendron Garden is the historical core of Tyler's rhododendron collection. Primarily featuring named cultivars and unnamed hybrids, the collection today is a remarkable assemblage of large-leaved evergreen (elipidote) rhododendrons and evergreen and deciduous azaleas that thrive in the Philadelphia region. It encompasses approximately 12 acres and 1500 specimens representing 486 distinct cultivars and unnamed hybrids, and 52 species and their selections. The collection also represents about 70 hybridizers/hybrid groups. The 143 taxa that are unnamed Wister hybrids form the largest group within the collection. Together with the 28 named Wister cultivars, they represent the largest assemblage of Dr. Wister's rhododendron breeding project in existence today. Dr. Wister's breeding program was unique for its focus on late-blooming cultivars. Using *R. maximum, R. discolor*, the Dexter #1206 group and some of the Ironclads, he was successful in breeding a new race of hybrids with blooming periods between late May to mid July. Notable named cultivars include 'Always Admired', 'July Hope', 'Snow Shimmer', and 'Summer Jewel'. The next largest group belongs to the Dexter hybrids, both named and unnamed, totaling 76.

The Wister Rhododendron Garden began as a simple plan. In Dr. Wister's own words, he laid out the garden as a "semi-wild naturalistic garden in which the plants were grouped and classified by size, season of bloom and color and, equally important, by botanical relationship and by horticultural history." Today, visitors stroll on grassy paths between large, informal beds of towering, mature plants. Specimens are grouped according to their taxonomic relationship and/or parentage. This arrangement of plants is logical and extremely helpful for the serious collector. For example, Ironclads are grouped together as are many of the Dexter hybrids. Dr. Wister's hybrids, both named and unnamed, are grouped according to parentage. However, this phylogenetic arrangement does not completely fulfill the Arboretum's current ideas regarding collections management, design, educational priorities, and visitor experience.

Recent Projects and Achievements

From the late 1970s to 2000, the collection suffered from severe deer-browse and buck-rub caused by a large white-tail deer population. Because of their shorter height, the evergreen azaleas were most susceptible to deer damage. No new projects for the rhododendron collection could be seriously initiated until the deer issue was solved. Following recommendations of Tyler's strategic master plan, a 12-foot wire-mesh fence constructed in 2000 effectively ended the 30-year siege. Funded by a capital campaign, the 2.01 mile fence encloses the Arboretum's 102-acre horticultural core.

The success of the deer fence enabled the staff to continue with the master plan's recommendations to improve the Wister Rhododendron Garden. In 2002, the Arboretum assembled a committee of staff, board members, volunteers, and local rhododendron society members. From this group, a concise document of concept designs was developed outlining overall goals behind the re-development of the collection. The document focused on three main issues: collection, design, and programming.

Rhododendron Evaluation Report

The major re-development issue regarding the collection addressed the integrity of Dr. Wister's breeding program, the collection's current condition, and future development. As a result,

a major assessment of the Wister Rhododendron Garden was completed in 2005 and produced a Rhododendron Evaluation Report (RER). This comprehensive document is now a driving force behind the preservation and restoration of the collection and includes the following planned actions:

- Evaluate the general health and horticultural merit of each accession.
- Identify those plants that are rare, horticulturally unique and/or superior.
- Establish priorities for the propagation based on rarity, horticultural merit, and historical significance.
- Recommend those unnamed Wister and Dexter hybrids that should be evaluated for potential naming and introduction.
- Recommend those plants that have little horticultural merit and should be removed.

The RER identified that priority should be given to the propagation of the named Wister and Dexter hybrids, a priority that directly supports Tyler's mission to "preserve, develop and share our diverse horticultural, historical and natural site resources…" Many of the superior clones named by Dr. Wister were represented by only one specimen, and others had already been lost. In October 2006, a joint propagation effort between Tyler Arboretum the Philadelphia Chapter of the American Rhododendron Society, and a few local nurseries resulted in 650 cuttings taken from Tyler's plants. Additionally, an East Coast search was organized to search for those Wister hybrids that had been lost from the collection. Twenty named cultivars were located, mostly in private gardens, with an additional 161 cuttings struck.

The long-term health of the rhododendrons also required that the staff address a few major cultural issues. The control of native and non-native herbaceous and woody weeds was an immediate concern. After four years, the eradication of Oriental bittersweet, Japanese honeysuckle and grape is complete. Control efforts against the pervasive garlic-mustard, Japanese stilt grass, and mile-a-minute vine continue with encouraging results. Concurrent with our weed control efforts, companion planting, consisting of low-maintenance groundcovers will further assist in weed and erosion control. Another cultural concern was the deep shade from the deciduous and coniferous overstory trees. After careful evaluation, 22 trees, most of which were conifers, were removed with an additional 90 trees pruned in 2005. The increased light levels and reduced competition have significantly improved growing conditions. Staff research resulted in the selection of six different *Quercus* species for canopy replacement. Lastly, a simple irrigation system was installed as a reaction to the severe droughts of 2002-2003.

Goals for the Collection and Plants for the Future

The Rhododendron Evaluation Report will carry this collection into the near future through its suggestions for new acquisitions. The diversity of lepidote rhododendrons, deciduous azaleas, and evergreen azaleas within the collection will be placed on those species and cultivars that will thrive in the Mid-Atlantic and on smaller-scaled plants that are well suited to modest sized gardens.

A current institution design challenge regarding the Wister Rhododendron Garden relates directly to the collection's original naturalistic design. With its soaring deciduous trees, large lasses of rhododendrons and meandering paths, this tranquil woodland garden appears as a "wild" arboretum backwater to many visitors. As a result, new conceptual designs have been created. Tyler's effort will transform the Wister Rhododendron Garden into a major visitor destination with regional significance as a

collection and as a designed garden. Future landscape projects will reshape the collection into a more coherent design with planned destinations and focal points. This circulation system will be organized into a hierarchal system of walking and vehicular paths that will further enhance visitor wayfinding and comfort. Wheelchair access will be considered throughout the garden.

Currently there is minimal interpretation of the rhododendron collection. The collection is well documented and all plants are labeled with accession tags and some display labels. Future educational goals include plans to develop and enhance the educational interpretation and programs relating to the collection. Proposed programs and interpretation will focus on the collection's history, the role of Dr. John C. Wister and his influence on American horticulture, plant breeding, sustainable horticultural plant communities, and environmentally responsible gardening practices.

Tyler's rhododendron collection is clearly more than just its plants. It tells the story, through plants, of one man's desire to collect the best rhododendron cultivars, to breed new hybrids of improved horticultural merit, and to bring those new forms to the public. Our continued efforts will build upon this story and bring the collection into the 21st century. For more information about the Tyler Arboretum and our collections, please visit our website at www.tylerarboretum.org

Reprinted from The Public Garden*, 2007 Issue One. Robert Herald can be reached at rherald@tylerarboretum.org*

Research Briefs

Propagation

BA promotes ramet formation in *Hemerocalis*. Daylilies are produced by tissue culture or by dividing new plantlets (ramets) from existing plants. Slow production of ramets by some population cultivars limits growers without specialized tissue culture equipment. The number of ramets produced on newly potted, single-shoot divisions of daylilies can be significantly increased by 1 to 3 consecutive weekly applications of BA at 2500 ppm, depending on cultivar. Increasing BA to 5000 ppm produces only slight increases. BA as BAP-10 is currently unlabelled for daylilies. Projected application costs for 2500 ppm BAP-10 is about 2.2 cents per 3.8 liters (#1) container, assuming four pots per square foot. (J.W. Amling, G.J. Keever, J.R. Kessler, Jr. and D.J. Eakes)

Excerpted from J. Environ. Hort*. 25(1)9-12. March 2007.*

Greenhouse production

Growth regulator liner dips for floriculture crops. An increasingly popular technique for applying plant growth regulators to floriculture crops is to dip or soak the root medium of a transplant in a chemical solution before transplanting—liner dip. At 28 days after transplant, all rates of paclobutrazol (Piccolo)and uniconazole (Sumagic) inhibited subsequent stem elongation by 21% to 67% in calibraochoa, petunia, scaevola, and verbena. In argyranthemum, stems were 33% to 42% shorter in plants treated with paclobutraxol at 8 or 16 mg/L or uniconazole at all rates. IN some species, the liner dip delayed flowering and reduced flower number compared with that of nontreated plants. This pretransplant PGR

application technique can be useful on vigorous ornamental species when grown together in the same container with less aggressive species without a PGR application. (M.G. Blanchard and E.S. Runkle)

Excerpted from HortTechnology *17(2):178-182, April-June 2007*.

Production of calibrachoa in hanging flower pouches. Pouches have advantages in production because they can be hung on greenhouse walls or walkways, thereby increasing the space use efficiency of greenhouse space. The ideal substrates were commercially available "porous" mixes or a combination of a heavier, water holding substrate on top of a porous mix, which served to distribute the water uniformly throughout the container volume. Adding heavier substrate or water-absorbing polymer to reduce watering frequency did not improve plant quality and caused substantial shrinkage or compaction. (J.M. Frantz, J.C. Locke and D.S. Pitchay)

Excerpted from HortTechnology *17(2):199-204, April-June 2007*.

Growth regulators improve growth control of Geogenanthus undatus 'Inca' (seersucker plant). Applications of ancymidol or flurpimidol administered to G. undatus 'Inca' late during the production cycle resulted in significant growth control and, therefore, superior plant performance throughout the postharvest period. The lower, more economical concentration (0.5 mg/pot a.i.) can be used successfully. In general, flurpirmidol exerted greater control over plant growth than ancymidol, and thus shows promise for use as a growth regulator in the foliage industry (A.L. Burton, S.V. Pennisi and M.W. van Iersel)

Excerpted from HortScience *42(3):544-549, June, 2007*.

Processed poultry feather fiber in greenhouse media. Being made almost entirely of the protein keratin, feathers are strong, fibrous, biodegradable and contain about 15% N by weight. Substrates containing composted bark, perlite, sphagnum peat and feather fiber (10, 20 and 30%) were studied. Total pore space and the water-holding capacity values were within recommended ranges for greenhouse crops for all substrates. Feather fiber could be used at rates up to at least 30% with peat and perlite substrates without negatively affecting physical properties. At 30% feather fiber with peat and bark, aggregation or clumping of the feather fiber occurred during mixing which might be problematic resulting in poor substrate uniformity. Therefore, with peat and bark, only 20% feather fiber should be used. (M.R. Evans and L. Vancey).

Excerpted from HortTechnology *17(3):301-304, July-September 2007*.

Perlite or parboiled fresh rice hulls in sphagnum peat-based media. Parboiled fresh ruce hulls (PBH) are a milling coproduct of the rice industry and comprise about 20% of the rice grain at harvest. Obtained as a part of the steaming process, they are free of viable weed seed. The inclusion of PBH provided for increased and air-filled pore space and drainage in the sphagnum peat-based substrates. Increasing the amount of PBH resulted in a greater increase in air-filled pore space and a greater decrease in the water-holding capacity than an equivalent amount of perlite. Less PBH would be required in a substrate to provide the same air-filled pore space and water-holding capacity as perlite when more than 20% perlite or PBH was used. (M.R. Evans and M.M. Gachukia)

Excerpted from HortTechnology *17(3):312-315, July-September 2007*.

Vermicompost as a potting substrate amendment. Vermicomposts are produced using earthworms (*Eisenia foetida*) to break down and stabilize organic wasters. During feeding, earthworms fragment the waste, increase microbial activity, and result in a composting or humification effect on waste material. Based on particle size analysis and physical properties, VC may be the most beneficial when used as an alternative supplemental component for peat or coir. The use of VC may reduce supplemental fertilizer applications or the need for the incorporation of nutrients in media formulations. (G.R. Bachman and J.D. Metzger)

Excerpted from HortTechnology *17(3):336-340, July-September 2007.*

Nursery Production

Fertilization of container grown rhododendron species for maximum benefit and minimum N loss. Transplanted one-year old liners of rhododendron (PJM) and deciduous azalea ('Cannon's Double') container sufficient N reserves in botht he plant and substrate to support initial plant growth. Uptake and demand of both cultivars increased in July, suggesting that N fertilizer application strategies for transplanted liners of the cultivars studied should include an N supply with low availability after transplanting followed by increased availability of N in the summer. This may improve N uptake efficiency and minimize N loss. (G. Bi, C.F. Seagel, L.H. Fuchigami and R.P. Regan)

Excerpted from J. Environ. Hort. *25(1)13-20. March 2007.*

Postharvest moisture loss from bare-root roses affects performance of containerized plants. Five cultivars of bare-root rose plants were exposed to increasing periods of drying and after rehydration were grown in containers until flowering in a plastic-covered greenhouse. At the start of the experiment, moisture content of well-hydrated roses was between 51% and 56%. Five or 7 hours of drying resulted in moisture contents below 43% for four of the cultivars and caused up to 80% mortality, increased time to flower, and decreased the number of flowering shoots. 'First Prize' was most tolerant of drying conditions. And all plants survived, whereas 'Mister Lincoln' plants were most susceptible and had poor regrowth performance. The rose industry must be sensitive to the issue of rose plant moisture loss. If water is not available in the field during digging (especially on warm, windy, dry days), tarps should be used to cover plants during transport to storage facilities. Also, plants should not be left exposed on shipping docks or in planting areas during breaks and especially overnight without providing a means to keep the plant surfaces constantly moist. (U.K. Schuch, H.B. Pemberton and J.J. Kelly)
Editor's Note: This is an issue for the production sites of bare root roses—primarily California and Arizona, but buyers of bare root roses must be aware of their supplier's post-harvest practices.

Excerpted from HortScience *42(3):622-625, June, 2007.*

Organic herbicide carriers for weed control in container grown woody ornamentals. Rice hulls, landscape leaf waste pellets and pine bark can serve as carriers for diuron and oryzalin to control weeds in container production of woody ornamentals. The use of these organic herbicide carriers can produce equivalent or, in a few cases, improved crop growth and effective weed control compared with use of water as a carrier. Based on the weed biomass data, long-term weed control (i.e. 120 DAT) can be obtained in containers treated with either oryzalin or diuron.

Organic mulches show potential to reduce the phytotoxic effects of an herbicide that is likely to cause some phytotoxicty to woody ornamentals. The slow release of herbicide from these organic carriers cold also minimize herbicide leaching problems. Other studies have indicated that herbicide leaching was reduced by 35-74% when organic mulches were used as carriers for preemergence herbicides as compared with direct spray applications of preemergence herbicides. (J.B. Samtani, G.J. Kling, H.M. Mathers and L. Case)

Excerpted from HortTechnology *17(3):289-295, July-September, 2007*.

Landscape

Types of mulch and their effect on weed growth, soil pH and nutrient content. Pine bark, eucalyptus, cypress and pine needle mulch were studied. All mulches greatly reduced dicot weed numbers with no one type superior to any other. Certain mulches such as cypress, pine bark, or eucalyptus mulch by themselves increased soil K or Mg concentrations, but none affected soil N concentrations. Fertilizer placement above or below mulch had little or no effect on soil nutrient concentrations and thus there appears to be no advantage to applying fertilizers under mulches. (T.K. Broschat)

Excerpted from HortTechnology *17(2):174-177, April-June 2007*.

Survival of 25 succulent green roof taxa and substrate depth in Zone 5. Because of greater interest in green roofs in the US, it is critical to increase the number and geographic range of proven pant resources for long-term survival on rooftops. Of the 25 species initially planted in this study only 47% survived in the deepest substrate (7.5 cm). Recommended species for climates similar to southern Michigan (zone 5) include *Phedimus spurious* 'Lenningrad White', *Sedum acre*, *S. album* 'Bella d'Inverno', S. *middendorffianum, S. reflexum, S. sediforme*, and *S. spurium* 'Summer Glory.' Subsidiary species that are present at specific substrate depths but may not exhibit an ability to initially cover large areas include *S. dasyphyllum 'Burnatii', S. dasyphyllum* 'Lilac Mound', S. *diffusum, S. hispanicum* and *S. kamtschaticum*. The primary deterrent for these subsidiary species was little to no survival at 2.5 cm. Deeper substrates promoted greater survival and growth for enarly all species tested. (A.K. Durhman and D.B. Rowe)

Excerpted from HortScience *42(3):588-595, June 2007.*

Turf

The use of a strip seeder to convert cool season turf to seeded bermudagrass. This study evaluated the potential for converting a sward of perennial ryegrass to 'Riviera' Bermuda grass in small plots and then to develop equipment that would facilitate this conversion on a larger scale. With this method there is little interruption in the use of the turf and as much as 80% less seed (on a weight basis) is required compared with converting the perennial ryegrass turf by broadcasting bermuda grass seed. To receive more information about using a strip seeder for converting cool-season turf to seeded warm-season grasses, contact Topeka Sod Farm, 6506 Cherokee Lane, Ozawkie, KS, 66070. Phone: (785) 979-4078. (J. Fry, R. Taylor, B. Wolf, D. Stuntz and A. Zuk)

Excerpted from HortTechnology *17(3):363-367, July-September, 2007*.

New Introductions/Nomenclature

Clarification of Fothergilla nomenclature. After a comparison of morphological characteristice among diverse clones of *Fothergilla gardenia* and *Fothergilla major*, it was determined that the majority of cultivars represented in commerce are hybrids. *Fothergilla* x *intermedia* (hybrid fothergilla) is proposed as the name for these hybrids. 'Appalachia', 'Bill's True Dwarf', 'Blue Mist'. 'Harold Epstein' and 'Jane Platt' are identified as *F. gardenia* cultivars. 'Arkansas Beauty', and 'KLMG' Mystic Harbor were found to be *F. major*. The remaining cultivars, representing the majority of named selections in commerce, including 'Blue Shadow', 'Eastern Form', 'KLMtwo' Beaver Creek, one unnamed clone (YDG 2005-323-A), 'KLMfifteen' Red Monarch, 'KLMsixteen' May Bouquet, 'Mt. Airy', 'Red Licorice', 'Sea Spray', and 'Windy City' were hybrids, *F.* x *intermedia*. (T.G. Ranney, N.P. Lynch, P.R. Fantz and P. Cappiello)

Excerpted from HortScience *42(3):470-473, June 2007.*

Insects

Kaolin particle film as a control for viburnum leaf beetle. Viburnum leaf beetle (a relative of elm leaf beetle) can completely defoliate a viburnum in one season. This pest was first found in Ontario but populations are now present in Pennsylvania. SurroundWP (kaolin wettable powder was tested as a barrier spray during container production of *V. dentatum* and found to significantly lower leaf damage and numbers of egg masses in amended plants, without a negative effect on plant growth. Nitrogen use significantly increased leaf damage by adults, numbers of egg masses, and plant growth. N amendment should be kept below 0.75 g Osomocote/lite (0.75 oz/ft^3) to ge the maximum benefit of SurroundWP. Growers must consider the desired level of plant growth and the level of leaf damage that would be acceptable. (H.S. Schultz, R. Manly, W. Halteman, M.S. Erich, C.R. Schwintzer and C. Stubbs)

Excerpted from J. Environ. Hort*. 25(1)4-8. March 2007.*

Merit controls lacebugs on Cotoneaster. A single soil application of imidacloprid (Merit) to *Cotoneaster salicifolius* planted in landscape beds provides protention from hawthorn lace bug well into the second growing season. *Cotoneaster dammeri* growing in containers treated with Merit remained toxic to hawthorn lace bug well into the third growing season following a single soil application. Use of Merit, due to its long residual activity, reduced the need for repetitive applications, thereby reducing time, labor and material costs associated with managing hawthorn lace bug. (A.Szczepaniec and M.J. Raupp)

Excerpted from J. Environ. Hort*. 25(1):43-46. March 2007.*

Japanese beetle control on roses. Single soil applications of imidacloprid (Merit) and azadirachtin (Neem) or weekly foliar applications of azadirachtin provide adequate foliage protection under moderate levels of defoliation. Although foliage of plants treated with soil-applied azadirachtin alone was protected from beetle injury, damage to blooms was unacceptable. Given th pervious inability of imidacloprid to protect blooms under higher levels of Japanese beetle pressure, the value of soil-applied insecticides to protect roses from Japanese beetles may be limited. (J.M. Vitullo and C.S. Sadof)

Excerpted from HortTechnology *17(3):316-321,*

July-September 2007.

Comparing biological and chemical control for twospotted spider mite in greenhouse production. Chemical control using the miticide bifenazate (Floramite) was compared with two release strategies (single release at a 1-4 predator to pest ratio based on sampled pest density and weekly release of predatory mites at numbers based on the area covered by the crop) using the predatory mite (*Phytoseiulus persimilis*). Biological control with predatory mites is an effective but underused option for managing TSM on greenhouse bedding plants. The use of a sampling plan to determine an appropriate number of predators to release was as effective as a chemical application or repeated predator releases without knowledge of TSM presence or numbers. (K.M. Holt, G. Opit, J.R. Nechols, D.C. Margolies and K.A. Williams)

Excerpted from HortTechnology *17(3):322-327, July-September 2007*.

Diseases

Garlic extract controls soilborne fungal pathogens. Garlic extract was fungicidal against a wide range of soilborne fungal pathogens, but the effective concentration varied depending on the number of applications and the root substrate type. Products that work include crude garlic extract, garlic oil, a compound extracted from garlic and the commercially available product used in this study—garlic extract (Garlic GP Ltd, Co., San Antonio, TX). Growers must take into account the root substrate or soil type to which the treatment is made. Growers must experiment on a few plants before using garlic extract to control soilborne fungi on plants in production. (R. Sealy, M.R. Evans and C. Rothrock)

Excerpted from HortTechnology*, 17(2):169-173, April-June 2007*.

Marketing

Behavioral differences between self users and gift purchasers of floral products. When compared with gift users, self users appear to use more external information sources in their flower purchases, especially information from shop windows and newspapers/magazines. These are barely accessed by gift users, who tend to count much more on personal preference and word of mouth in their flower purchase decisions. Self users put more focus on the criteria of longevity, price discount, and product quality than gift users, whereas gift users focused more on the criteria of symbolic meaning and situational value. Self users exhibit a greater tendency to purchase flowers from the traditional flower market. Gift users seemed to focus on the criterion of availability of home delivery service considerably more than self users. Floral marketers should adjust marketing strategy depending upon which market segment they are targeting. (C.Huang)

Excerpted from HortTechnology *17(2):183-190, April-June 2007*.

Consumer interest in value-added planters. Participants were asked to evaluate planters based on flower-color harmony, container style and price. Price accounted for the greatest role in the consumer preference for planters. There was no significant difference between the low ($19.98) and middle ($29.98) price point, but both the low and middle prices were significantly different from the high price point of $39.98. Color combination was the second most important purchasing decision factor. The most preferred color harmony was direct complement (violet and yellow flower colors), whereas triad (yellow, orange, and yellow-

green) was preferred next. Contrasting (violet, red and orange), analogous (violet, red-violet, and blue-violet), and monochromatic (tints, tones and shade of violet) were disliked by consumers. No significant difference was found among black plastic, decorative foam, or terra cotta container. This result may be due to the fact that plants were fully mature and the container was almost completely out of view. (J. Phillips, E.J. Holcomb and K. Kelley)

Excerpted from HortTechnology *17(2):238-246, April-June 2007*.

Pesticides/IPM

GREEN-BLUE SUMMIT: CLEAN WATER THROUGH RESIDENTIAL IPM

Are you concerned about the impacts of residential pest management on water quality? Then plan to attend the "Green-Blue Summit" on July18-19, 2007. This event will focus on connections between water quality and integrated pest management (IPM) in turf and structural settings.

Location: The Green-Blue Summit will be held at Penn State's Great Valley Conference Center, about 30 miles west of Philadelphia, with an evening social at Longwood Gardens.

Program: The purpose of the Green-Blue Summit is to identify core messages for consumer outreach and education, to identify specific areas of concern, and to develop strategic plans for addressing IPM needs in turf and structural settings. Plenary sessions will focus on

- Risk management
- Water quality information sources for communities
- Marketing the message
- Success stories about IPM and water quality

Participants will then select from concurrent workshops on either turf or structural pest management issues. There will be many opportunities for interaction and networking among individuals of diverse affiliations who share concerns about water quality and residential property management. The summit will be hosted by the Northeastern IPM Center,* with presenters from universities, community organizations, private firms, and federal agencies.

Who should attend: The Green-Blue Summit will attract decision-makers interested in the connections between water quality and the management of pests in residential settings, as well as those who can make an impact by sharing key messages with the public. Participants will include municipal and community leaders, consultants, and those affiliated with Extension organizations, federal and state agencies, municipal water authorities, landscape and turf care service companies, structural pest management companies, nongovernmental organizations, universities, and lawn and home care product manufacturers, wholesalers, and retailers.

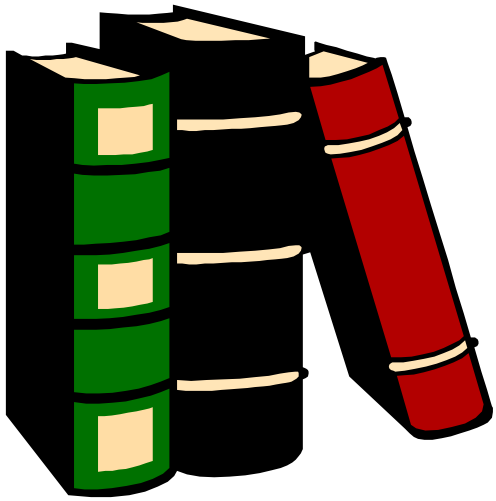
Registration: Registration at NortheastIPM.org/greenbluesummit.cfm. A registration cost of $220 will cover participation in the program, proceedings, food, and entrance to Longwood Gardens. Hotel costs will be separate (details will be available when registration opens). For additional information, please contact the leaders of the Northeastern IPM Center's Community IPM Working Group: Mary Kay Malinoski (mkmal@umd.edu) or Lynn Braband (lab45@cornell.edu). To receive future announcements about the event, please contact Amy Galford (aeg1@cornell.edu).

Publications

Absolutely Beautiful Containers: The ABCs of Creative Container Gardens by Sue Amatangelo. The book focuses on a progression of 200 container gardens. Features container recipes that appeal to the novice and master gardener alike. Each container designed includes a plant list, planting diagram and color photograph. Published in May 2007 by Ball Publishing, www.ballbookshelf.com or by calling (888)888-0013.

New Pocket Scouting Guides for the Landscape, Nursery and Christmas Trees. Scouting for pests is an important part of an integrated pest management program. It includes color pictures/descriptions that can help you find insects, diseases and abiotic problems. All of the guides are printed on water-resistant pages and are sized to fit into a pocket or glove box . Funds for their development were provided by The North Central IPM Center and Project GREEN. For more information, visit the MSU Integrated Pest Management Resources website at: http://www.ipm.msu.edu

Handbook of Poisonous and Injurious Plants, 2nd edition, Lewis S. Nelson, Richard D. Shih and Michael J. Balick. Co published by Springer and the New York Botanical Garden. Cost $39.95. The book is divided into five sections; (1) Botanical nomenclature, (2) Toxic mechanisms of poisonous plants, (3) Plant-induced dermatitis, (4) Gastrointestinal decontamination, (5) Comprehensive compendium of poisonous and injurious plants. It provides a wealth of information on hundreds of plants as well as descriptions of the symptoms often experienced by those who have been exposed to phytotoxins. Useful for physicians, clinicians, emergency and poison center personnel, naturalists, hikers, botanists, horticulturists and gardeners. Furthermore, it should make a valuable addition to the libraries of parents of small children, especially when decisions need to be made about which plants to include or avoid in their gardens.



Calendar

July 12 – Grounds Managers' Field Day – Swarthmore College and the Scott Arboretum, Swarthmore, PA, 7:45 AM to 2 PM. Contact Scott Guiser(215)345-3283.

July 14-17 – Learn, Grow, & Be Inspired at the 2007 OFA Short Course-An Association of Floriculture Professionals will host its annual OFA Short Course in Columbus, Ohio. This annual must-see floriculture event has one purpose: to help you succeed. Take advantage of this premier educational and trade show event. Join OFA as it presents the OFA Short Course at the Greater Columbus convention Center in Columbus, Ohio. For additional info: Contact OFA, 2130 Stella Court, Columbus, Ohio 43215-1033. Phone (614)487-1117; fax: 614-487-1216; e-mail: ofa@org; online: www.ofa.org.

July 16-18 – Virginia Society of Landscape Designers Summer Tour, Sun & Surf Garden Tour, Norfolk and Virginia Beach; Contact: (757)357-2961, droselius@aol.com, www.vsld.org

July 17–19 – PA Green Expo 2007, Harrisburg Farm Show Complex & Expo Center, Harrisburg, PA; Contact: 1-800-789-5068. www.PAGreenExpo.com

July 18-19 – Green-Blue Summit: Clean Water through Residential Integrated Pest Management (IPM). The Northeastern Community IPM Working Group will host this and focus on connections between water quality and integrated pest management in turf and structural settings. Featuring plenary sessions and workshops for leaders and decision-makers, this event will call on participants to help identify core messages for consumer outreach and education, identify specific areas of concern, and develop strategic plans to address IPM needs in turf and structural settings. (The Community IPM Working Group is part of the Northeastern IPM Center, funded through the USDA's Cooperative Research, Extension, and Education Service –CSREES).

July 19-21 – American Horticultural Society's 15th annual National Children & Youth Garden Symposium, "Widening the Circle". Join educators, garden designers, community leaders, and children's gardening advocates for the American Horticultural Society's 15th annual National Children & Youth Garden Symposium, Widening the Circle, hosted by the Minnesota Landscape Arboretum's Public Policy Programs. For more information or to be added to the mailing list, go to www.ahs.org or call 703-768-5700 x 132.

July 19 – Green Industry Field Day at American University, Washington, DC, 7am-3pm, Contact: (703)771-5838, ddillion@vt.edu

July 20 – 11th Annual Woody Plant Conference. Lang Performing Arts Center, The Scott Arboretum of Swarthmore College, Swarthmore, PA. Sponsors: Chanticleer, Longwood Gardens, Morris Arboretum of the University of Pennsylvania, The Pennsylvania Horticulture Society, The Scott Arboretum of Swarthmore College, The Tyler Arboretum. Call:(610)388-1000, ext. 507; www.woodyplantconference.org

July 22-25 – ANLA 2007 Legislative Conference, Hyatt Regency Washington on Capitol Hill, Washington, DC. Sponsored by the American Nursery & Landscape Association (ANLA). Contact: Ashley Giuda (202)789-2900; fax (202)789-1893; e-mail meetings@anla.org; www.anla.org

July 24-26 – Penn Atlantic Nursery Trade Show (PANTS). Pennsylvania Landscape & Nursery Association. Atlantic City Convention Center, Atlantic City, NJ. Sponsored by the Pennsylvania Landscape & Nursery Association. Online registration free until July 13: $20 after $25. Call:(800)898-3411, or (717)238-1673; fax (610)544-9808; e-mail sally.oshea@verizon.net; www.pantshow.com

July 26 – Penn State Flower Field Day, Penn State, Landisville, PA. Contact: Penn State Cooperative Extension in Dauphin County, (717)921-8803. Pesticide update credits will be provided.

July 28 – Water Garden Tour "Habitat Edition". Delaware Nature Society, 9 AM – 4 PM. Contact DNS (302)239-2334.

July 31, August 1, 7, 8 – Pesticide Short Course, Neshaminy Manor Center, Doylestown, PA. Contact: Scott Guiser (215)345-3283

August 1,7,8 – Pesticide Short Course, Neshaminy Manor Center, Doylestown, PA, Contact: Scott Guiser (215)345-3283.

August 5-12 – The Silver Anniversary of the Perennial Plant Symposium; Hyatt Regency, Columbus, Ohio. http://www.perennialplant.org/index.asp. Phone (614)-771-8431. ppa@perennialplant.org

August 9-11 – SNA Trade Show, Atlanta, GA. World Congress Center, Building C, Atlanta, GA (trade show); Atlanta Marriott Marquis (convention). Phone:(770)953-3311, www.sna.org; e-mail mail@sna.org.

August 13 – Pest and Disease Walk for Green Industry Professionals. Delaware Valley College, Doylestown, PA. Contact Lehigh County Cooperative Extension (610)391-9840.

August 15th - DNLA Summer Expo. Baywood Greens, Millsboro. The event will feature a guided horticultural tour of the golf course, community and composting operation. Contact Valann Budischak 888-448-1203.

August 15 & 16 – Invasive Plants Research, Removal and Renewal, University of Pennsylvania, Philadelphia, PA. Conference sponsors: Mid-Atlantic Exotic Pest Plant Council, Inc and Morris Arboretum of University of Pennsylvania. Fee $185(two days)-$100(for one day), Student fee: $95(for two days)-$50(for one day).Downloadable registration forms available at www.morrisarboretum.org, click on Education and Symposia and Seminars.

August 20 – Kent County Pest Walk, 5-7 PM. Delaware State University campus. Cost - $5. Contact Gordon Johnson at 302-730-4000.

August 21 – Plant Health Care Summer Pest Walk. Green Valley, Chester County, PA. Contact Cheryl Bjornson, (610)696-3500 ext. 20.

August 22 – New Castle County Pest Walk, 5-7 PM. Mt. Cuba Center. Cost - $5. Contact Carrie Murphy at 302-831-0506.

August 24-25 – Virginia Christmas Tree Growers Association's Annual Meeting, Conference and Trade Show-Natural Bridge, VA, Contact:(540)382-7310, secretary@VirginiaChristmas-Trees.org

August 31 – Plant Health Care – Summer Pest Walk, Welkinweir, Green Valleys Asso., Pottstown, PA,. Time: 12:30 – 4:30pm. Contact: Cheryl Bjornson (610)696-3500. Pesticide update credits will be provided.

September 4 and 11– Identification of Herbaceous Perennials, West Grove, PA, Contact: Cheryl Bjornson (610)696-3500.

September 6 – Industrial and Right-of-Way Weed Meeting, Williamson Restaurant, Horsham, PA, Contact: Scott Guiser (215)345-3283. Pesticide update credits will be provided.

September 12 – Chester County Landscape Update, Chester County Government Services Center, West Chester, PA. Time 1:00- 4:30 pm. Contact: Cheryl Bjornson (610)696-3500. Pesticide update credits will be provided.

September 12 – HRAREC Annual Field Day & Virginia Turfgrass Field Day, Hampton Roads Agriculture Research & Extension Center, Contact: bapple@vt.edu

September 17-22 – GCA Eastern Performance Trials-2007, Contact:(503)261-0500, info@gardencentersofamerica.org

September 18 – Berks County Landscape Update, Berks County Agricultural Center, Leesport, PA, Contact: Nancy Bosold, (610)378-1327. Pesticide update credits will be provided.

September 18-22 – ANLA 2007 Landscape Operations Tour, at various locations in Long Island, NY. Sponsored by the American Nursery & Landscape Association (ANLA) Contact: Ashley Giuds (202)789-2900; fax (202)789-1893; e-mail agiuda@anla.org; www.anla.org

September 19 – Montgomery Co. Landscape Update, 9:00am – 12:00 noon, Montgomery Co. 4-H Center, Creamery, PA, Contact: Mary Concklin (610)489-4315. Pesticide update credits will be provided.

September 25 – Bucks County Landscape Update, 1:00-4:00pm, Neshaminy Manor Center, Doylestown, PA, Contact: Scott Guiser (215)345-3283. Pesticide update credits will be provided.

September 25 – Lehigh County Landscape Update, 4:00-9:00pm, Schnecksville Fire Company Pavillion, Schnecksville, PA, Contact: Emelie Swackhamer (610)391-9840. Pesticide update credits will be provided.

October 1-5 – Tree Climbing School, the Gardens at Morris Arboretum, Phila, Contact: Cheryl Bjornson (610)696-3500. Pesticide update credits will be provided.

October 10 – DCH Annual Meeting and Hansen Lecture, Arsht Hall, University of Delaware, Wilmington Campus. Contact: (302)658-6262, fax: (302)658-6267, www.dehort.org

October 18 & 19 – Urban Forestry Conference, Toftrees Resort, State College, PA, Contact: Dr. Bill Elmendorf (814)863-7941. Pesticide update credits will be provided.

October 26 – Delaware Invasive Species Council, inc Presents -8th Annual Meeting, Grass Dale Center, Delaware City, Delaware. Contact Geri McClimens at the Delaware Dept of Agriculture:

geri.mcclimens@state.de.us, or call: (302)698-4577.

November 28 – 2007 Ornamentals Short Course Program: Landscape Series 4-6 PM; Session (1) The Planting Process – Kent County Extension Office, Dover; Cost is $35 (series) or $10 for each session.

December 3 – 2007 Ornamentals Short Course Program: Landscape Series 4-6 PM; Session (2) Landscape Maintenance – Mulching, Fertilizing, Pruning – Kent County Extension Office, Dover; Cost is $35 (series) or $10 for each session.

December 5 – 2007 Ornamentals Short Course Program: Landscape Series 4-6 PM; Session (3) Problem Solving – Kent County Extension Office, Dover; Cost is $35 (series) or $10 for each session.

December 10 – 2007 Ornamentals Short Course Program: Landscape Series 4-6 PM; Session (4) Landscape IPM – Kent County Extension Office, Dover; Cost is $35 (series) or $10 for each session.

December 12 – 2007 Ornamentals Short Course Program: Landscape Series 4-6 PM; Session (5) Landscaping With an Environmental Focus – Kent County Extension Office, Dover; Cost is $35 (series) or $10 for each session.