Volume 22 Issue 1 Spring 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.

It's spring! At least according to the calendar. However, the thermometer's another story. Despite the chill, growers are frantically trying to plant and ship plant material; landscapers and lawn maintenance companies are busy scheduling jobs; trucks loaded with plant material and supplies are pulling into garden centers; and golf course superintendents and their staff are preparing their courses for the busy season. For the green industry, spring is not that different from the Christmas selling season for retailers. Hopefully 2007 will prove to be a banner year!

The DNLA certainly started the year with a bang. The Delaware Horticulture Industry Expo (DHIE) was held January 17th & 18th at the Modern Maturity Center in Dover. The event gave us the opportunity to experiment with a new format. Exhibitors had their own exhibit hall. This gave them increased flexibility to meet with customers throughout the conference and/or, if desired, partake in the sessions. The format met with rave reviews by exhibitors and attendees alike. The Modern Maturity Center was, once again, a packed house! It's always exciting to see so many people in our industry in one location!

The winners of the 2006 DNLA Landscape Awards were honored at the DHIE. We received many fine entries for the contest. The judging took place in October. Congratulations to our winners! The winning entries were submitted by the following:

Mary Ellen Taylor of Taylor Landscape Contractors in Hockessin, DE

Deanna Pillarelli of Garden Escapes located in Hockessin, DE

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 later in the summer.

Mark your calendars! August 15th is the date that has been set for the Summer Expo. We're taking this event 'on the road'. We hope to rotate it among the three counties. The year's event will be held in Sussex County at Baywood Greens. Baywood's located in Millsboro. The event will feature a guided horticultural tour of the golf course and community. We will also visit their fledgling composting operation. If you haven't visited Baywood Greens in the summer…this is your chance. You won't want to miss it! More information will follow.

Congratulations to New CNP's:

New CNP: **Justin Bartels**
Sposato Landscape Co.
Landscape Design Specialist

Roger Crout
Paulish's Landscape Co.
Landscape Design Specialist

Katie Ditmer
Sposato Landscape Co.
Landscape Specialist

Don Savard
Don Savard, CSFM, CGM
Turfgrass Management Specialist

Sheryl Wendeler-Short
Lowe's Garden Center
Landscape Specialist

New Specialty Added: **Margarita Ortiz**
Paulish's Landscape Co.
Landscape Specialist

Welcome New Members:

R & L Landscaping LLD
Patrick Richie
76 Beacon Hill Drive
Dover, DE 19904
(302) 222-0290

Richard Miller
11 Malvern Court
Wilmington, DE 19810
(610) 459-1407

Growing Interest
Kenneth Darsney
32 Honeysuckle Drive
Wilmington, DE 19804

Miller's Lawn Service
Michael Miller
32107 Jimtown Road
Lewes, DE 19958
(302) 644-2859

Weeds, Inc.
Brian O'Neill
250 Bodley Road
Aston, PA 19014
(610) 358-9430

Complete Lawn Care, Inc.
Julie Schlick
30598 Cordrey Road
Millsboro, DE 19966
(302) 945-8289

Bartlett Tree Experts
John McMillin
466 B & O Lane
Wilmington, DE 19804
(302) 245-7296

Roots Landscaping
Catherine Winkler
36226 DuPont Boulevard
Selbyville, DE 19975
(302) 732-0866

Woodside Greenhouse
Pete Gilmore
24414 Deerfield Lane
Ridgely, MD 21660
(410) 479-5546

The Brickman Group
Sue Jernberg
20141 Cedar Branch Road
Milford, DE 19963
(302) 424-1669

Greenland Sod Farm
Jane Houtman-Sewell
P.O. Box 276
Bethel, DE 19931
(302) 875-3300

Lawn Lines Landscaping LLC
Jerry Field
115 W. Mount Vernon Street
Smyrna, DE 19977
(302) 547-2991

Shore Property Maintenance
Ted Nowakowski
4 S. Lake Terrace
Rehoboth Beach, DE 19971
(302) 947-4440

General Lawn & Landscape
Michael Perrone
P.O. Box 426
Hockessin, DE 19707
(610) 268-8566

Trussum Pond Lawn Irrigation
Jeff Lloyd
11323 Trussum Pond Road
Laurel, DE 19956
(302) 875-5207

Radmer Farms
Debbie Radmer
11830 Kibler Road
Greensboro, MD 21639
(410) 482-7891

Waite Garden Design & Lighting
Helen Waite
P.O. Box 532
Nassau, DE 19969
(302) 645-2156

Delaware Valley Hydroseeding
Al Sonchen
626 Park Road
Cherry Hill, NJ 08034
(302) 740-1861

U of D NEWS
Susan Barton, Extension Specialist

Short courses offered in winter/spring 2007 were well-attended. Lots of industry professionals and Master Gardeners learned about plants selected for specific purposes (windbreaks, screens, borders and hedges; drought tolerance; shade, problem free; and massing); IPM basics, CNP prep sessions on plant and soil basics; a plant ID walk; composting; and turf. Remember, a landscape series is scheduled for next November and December in Kent County. Look for pest walks to be scheduled this summer and fall.

This winter and spring, the University of Delaware, Dept. of Ag, Delaware Center for Horticulture and DISC have continued to wrestle with the difficult problem of invasive plants in Delaware. On March 5, members of the nursery and landscape industry met at the Dept. of Ag and discussed their concerns about invasive plants and possible "next steps" for Delaware regarding invasive plants. A summary of these discussions is included later in this issue of the DNLA News (page 10). On April 17, another group comprised predominantly of state employees and members of environmental groups and agencies will hold a similar forum. We will keep you posted on the results from their discussions.

On April 13, the University of Delaware (staff, students and volunteers) removed a highly visible hedge of *Euonymus alatus* (burning bush) that surrounded the Visitor Center parking lot. The project was spearheaded by Leslie Carter, a senior UD student doing a degree with distinction that includes the removal project as well as a design and sign proposal for a wildlife habitat garden to be installed around the new Visitor Center (to be build on the UD campus this summer). Leslie became passionate about removing burning bush on the University campus after spending a good part of her

summer in 2005 on a DNREC crew removing burning bush from the White Clay Creek State Park adjacent to campus. This high visibility project was designed to educate homeowners about the problems associated with invasive plants and show them that they too can remove invasives and replant with desirable alternatives that improve their landscapes and reduce the threat to surrounding natural areas.

On another front, the third brochure in the Plants for a Livable Delaware series will be released in late April. This brochure, entitled Landscapes for a Livable Delaware 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, this brochure will help homeowners figure out what to do with their landscapes. The brochure is available from your county extension office, the Department of Agriculture, Delaware Center for Horticulture, Mt. Cuba Center and Delaware Nature Society.

WEED CONTROL IN LANDSCAPE BEDS AND MORE

Steve Hart, extension weed specialist from Rutgers, conducted a great in-service at the end of March. Here is some of the information he shared.

In landscape beds, it is important to place herbicides in the proper location with respect to mulch. Ronstar, Goal, Rout and OH_2 require light to be effective and must be placed on top of mulch. Devrinol, Treflan and Snapshot have the potential to volatilize, therefore must be placed below mulch. Gallery, Pennant and Surflan can go under or on top of mulch.

Some landscapers like to use landscape fabric under mulch to reduce weeds in landscape beds. Fabric can work in shrub beds, but is not effective for annuals and perennials, when too many holes are punched in the fabric. Spun-bonded fabric is better for weed control than woven fabric, but it has limited friction and will not hold mulch on a slope.

Snapshot, Rout and OH_2 are great on annual grasses and a wide range of annual broadleaf weeds and should be applied as a preemergent in early spring and late summer. Ronstar and Casoran are other preemergent products. Casoran is especially useful for controlling really tough perennial weeds, like Canada thistle and mugwort in an existing groundcover, like blue rug juniper. But, Casoran is tricky to use. Only apply Casoran when it is cold because it is highly volatile. The ideal time to apply is in February, when there is a layer of snow on the ground. As the snow melts, it carries the herbicide into the soil.

When applying a granular herbicide, don't let the granules collect leaf whorls. Some landscapers effectively use leaf blowers to blow granules off plants and onto the soil where they

belong. Allow soil to settle around newly planted perennials before applying herbicide. Air pockets become flow channels and you will loose the herbicide from the zone where it provides control. Pennant is a good preemergent to use for yellow nutsedge control.

Post emergent products for landscape beds include SedgeHammer (new name for Manage), Basagran, and Lontrel for broadleaf control; Acclaim, Fusilade, Vantage and Envoy for grass control; and Roundup and Finale for non-selective control. Basagran is good for Canada thistle and yellow nutsedge. Fusilade is the best grass herbicide to use for bermudagrass in beds. The grass herbicides can generally be used over the top when beds contain broadleaved plants.

Many suppliers now carry a glyphosate product. Fortunately, the formulations are all 41% active ingredient (expcept Glypro). All manufacturers have also followed the convention of calling their product "pro" or "plus" if it contains a surfactant. When people complain about poor control with glyphosate, it is usually a timing issue. Spraying glyphosate in April on tough weeds will kill topgrowth but since there is very little translocation to the roots at this time of year, the plant is not completely killed. If you are managing difficult weeds like mugwort, the best thing to do is to keep the mugwort in check until about July 15 (but you won't be able to kill it). Then allow it to grow to about 6 inches. Control with an application of glyphosate on August 15 and a second application in September.

Steve Hart's recommendation for control of bermuda grass in lawns is to apply 3-4% Round Up Pro mixed with a post emergence grass herbicide. Then wait four weeks to see what comes back. Retreat (maybe as many as two-three times) and reseed in August.

Yellow nutsedge is another difficult to control weed. Glyphosate usually just burns the tops without killing roots. The product formerly called Manage, is now SedgeHammer, and can be used by professionals for excellent nutsedge control. You need a significant amount of foliage present to get good control. SedgeHammer failures are usually due to one of the following reasons:

1. lack of high quality non-ionic surfactant – you must add a surfactant when using SedgeHammer for nutsedge control.
2. degradation in solution – SedgeHammer degrades in solution with a complete breakdown in 5-7 days. That means if you mix a tank, don't use it all, save it for 5 days and try to use then, it won't work.

Mugwort, another difficult weed, can be controlled with glyphosate in late fall. Lontrel and Casoran (applied during winter) can also control mugwort.

Phragmites can be controlled with Rodeo (the aquatic formulation of glyphosate) but you need to use a high rate and apply in the fall. Renovate has an aquatic label, contains triclopyr and has good activity on phragmites if applied in late June.

Glyphosate will control poison ivy, but only with a fall application. Use a rubber glove, covered by a cotton glove and brush a 10% glyphosate solution on the plant.

Some new products for weed control include:

1. mesotrione – This product will replace Tupersan. It provides a longer window for crabgrass control by providing early postermergent activity. Unfortunately, it turns foliage white for about 2 weeks before it kills the weed. It will control creeping bentgrass and nimblewill in

cool season turf and provides selective removal of zoysia and bermudagrass in cool season turf. For commercial nursery production, it may have a use as a preemergent to control yellow nutsedge.

2. Dismiss – This is a new nutsedge material. It controls other sedges as well and has rapid activity.

3. Quicksilver – This product provides more rapid injury and will control moss and Star-of- Bethlehem (at high rates).

4. Spotlight – This new formulation removed clopyralid since clopyralid can't be used on material destined for compost (i.e. lawn clippings).

IT'S HARD DEFINING GREEN

Bob Dolibois, executive vice president, ANLA

ANLA members enjoy several Internet-based communications channels. First, there's ANLA *Connect*, which is a lively listserve with 800 members currently enrolled. The second channel is a series of sector-specific (grower, retail, landscape and distribution) e-newsletters. This second channel, sent automatically to members with businesses in those sectors, offers sometimes provocative views with hotlinks to articles or blogs that challenge industry conventional wisdom.

In October, ANLA's landscape sector e-newsletter skirted an issue that resulted in a lively exchange on ANLA *Connect.* What was the topic that stirred the electronic pot? It was: How green does the green industry need to be?

Whoa, you say. What kind of a question is that? By definition we are green. We're the original environmentalists, I hear you say. That's all true. But, like all good intentions and ideas, other people are catching on, co-opting and redefining what being "green" means. Among them are some folks that only a few years ago would be deemed oblivious to the meaning of green. Like Wal-Mart. Like the construction trades. Like, even, the energy industry!

Wait, you say. These people are just claiming to be green to appear more compassionate and trendy and to cash in on the greening movement. Okay. Maybe. But are there people out there who may be saying the same thing about us? Based on what ANLA faces on a near-daily basis, I can categorically say, YES, there are plenty of people who lump us-the green industry-into that category. And friends, the ranks of those people who doubt our intentions are increasing.

Hence, the question: How green does the green

industry need to be? One industry outlier even challenged the notion of how relevant the term "green industry" is to our industry moving forward. Hamm.

Challenges

Plant selection: Defining "green" in this area is simply a mess. There are some forces defining "green" as nothing less than "native" plants propagated only from seeds collected from local sources. (Workable ever? Not!) Next, in the muddle, is confusion about nativeness and invasiveness. In the middle is right plant, right place. And in the far corner is the nobody-better-tell-ME-what-to-grow crowd. (Workable tomorrow? Not!) Where do greenhouse crops fit today and tomorrow?

Landscape maintenance: There's near-universal agreement that green-managed landscapes need to be managed. Duh. Beyond that, the camps divide strikingly. The current business model of most landscape (and particularly turf) maintenance firms is based on applications of stuff, like fertilizer and things ending in "-cide." The anchor position on the other side wants none of that stuff. There's a middle position that seeks a compromise based on soil prep, plant selection and other variables. This middle position is emerging slowly. It requires an adjustment of customers' expectations, modified business models and further development of plant varieties, such as slower growing turf.

Water: If some greenies had their way, there would be a lot less green. What??!!

Opportunities

Greening cities: This is a movement where the Europeans have got it right. Green roofs. Buffer strips. The whole "Bill McDonough" thing.

Green construction: Better soil management, tree survival, attention to the landscape. Woo-hoo!

Green mitigation: Green fields to clean brown fields. Green drainage pits to replace concrete ones.

Carbon sinks: Not the bathroom kind, the forest kind. Nurserymen unite and greenhouse growers rejoice for your brothers and sisters.

I don't have an answer to the question: How green does the green industry need to be? I do know that whatever that answer is today is NOT going to be the same answer in 20 years. Get *connected* so you can help us figure it out.

GOING GREEN: IT'S HERE TO STAY

Anna Ball, president, Ball Horticultural Co

Sustainability – (From Wikipedia):
"Sustainability is an attempt to provide the best outcomes for the human and natural environments both now and into the indefinite future. It relates to the continuity of economic, social, institutional and environmental aspects of human society, as well as the non-human environment. It is intended to be a means of configuring civilization and human activity so that society, its members and its economics are able to meet their needs and express their greatest potential in the present, while preserving biodiversity and natural ecosystems, and planning and acting for the ability to maintain these ideals in a very long term. Sustainability affects every level of organization, from the local neighborhood to the entire planet."

It seems that every business and consumer magazine these days has yet another article about how the whole world is going "green," sustainable or socially responsible. It's the trend-from Wal-Mart to Starbucks, from Ford to Whole Foods, a huge range of companies and industries are pursuing a sustainable path. Some companies are sincere; others are doing it for cosmetic value. Regardless, it's happening.

So where is horticulture in this new scene? Missing!

Here we are, the quintessential green industry, selling real, live natural flowers and plants, and yet we seem to be the last industry to turn "green." As a non-horticultural friend of mine said when I showed her one of our brochures with a colorful plant on the cover: "The flower is pretty, but what's it doing in a plastic pot?"

Sustainability has passed the point of being trendy. It's a way of thinking that's here to stay, and not just with a small minority of consumers. That means we, as an industry, have to figure out how to do the right thing in the right way, a way that's good for the consumer and for the environment, as well as for our businesses. As demand increases, our industry will be pressured to provide more sustainably-grown products.

But why wait for that pressure? We should be working on the issue now! We should lead, not follow. Why? Because it just might transform and revitalize our flat industry, that's why.

Because it's so important, we need to do it right. What is "right"? What does it mean to "be sustainable"? And how do we get there? We need to figure that out together, as an industry. We need to invest in research for sustainable, sound products and production methods. For instance, we've been working on biodegradable packaging for years, but we have yet to discover a solution that works for growers, retailers, landscapers and consumers. Plastic is a wonderful material (lightweight, stackable and inexpensive), and it's going to be difficult to replace unless a new container offers the same benefits, AND uses less energy and degrades in the ground or landfills.

Several companies are working hard on this, and they will succeed.

At Ball, we've been researching and studying those questions for several years, and we've found out that sustainability, while not easy or quick IS achievable, if we take careful, methodical steps. We're setting some ambitious goals for ourselves, and we'll be learning along the way, and sharing what we learn.

For instance, by 2010 our gardeners in West Chicago will be grown completely sustainably and organically if possible-using bio-packaging for the transplants, along with natural herbicides and organic-based fertilizers. Globally, our seed and vegetative production locations around the world are on a fast track toward sustainability. Some, such as Linda Vista in Costa Rica, are way ahead of the pack. They have been" going green" for more than five years, far exceeding the stringent regulations in that environmentally aware country. The best news of all may be the unexpected surprise finding in our trials that sustainably-grown plants are prettier! We all know that what sells at retail are colorful, robust, healthy looking plants. Sustainability may increase sell-through!

When I first started talking organic and green several years ago (thanks to a customer, who introduced the idea to me) people would groan and roll their eyes. Now, that doesn't happen. If we embrace the idea of sustainability, we can certainly make it practical and attainable.

And if we don't? Frankly, I don't think that's going to be our choice to make. We can either do it, or be forced to do it-by our customers or by our legislators. I would rather embrace it. It's the right thing to do.

Agree? Disagree? Have questions? E-mail me at aball@ballhort.com

Preceeding two articles excerpted from Grower Talks*, December 2006.*

MARCH 5 INVASIVE FORUM DISCUSSION NOTES

Editor's Note: *The following is a relatively unedited list of ideas and discussions that occurred at the March 5 Invasive Forum. Read what your industry colleagues think about this issue.*

Theme: Are invasive plants an issue?

- All agree that invasives are an issue. Rob Line presented evidence to support that.
- Most problematic – vining woody; thorny woody.

Invasives by county:

Kent- bamboo, purple loosestrife, multiflora rose and honeysuckle

Sussex- multiflora rose, clematis, honeysuckle, ivy, briers on edges, dunegrasses blowing in, phragmites, bamboo. Nanticoke has porcelain berry and wisteria issues.

NCC- removals of invasives present conflict with birders – ex: vines; multiflora rose; bamboo spreads but doesn't invade

- Differences by county and where/what invasives are found is due to the biological difference of soil types.
- Biggest problem are those not sold – ex: multiflora rose
- Most are found on private land -86%
- Problems with terminology with public – invasive vs. nuisance
- Invasives present a great opportunity for industry to be pro-active. Serve an educational role (booth at garden fairs); promote removals; booklets and displays at garden centers and big box stores
- Expand to all retail nurseries
- Public doesn't care, even if they're aware they feel they can control their own plants
- People take nature for granted
- Control involves replacements with desirable species

How to solve these issues?

- Renew laws, regulations, & ordinances in counties, cities, etc.
- Use local designers and landscape architects who are more familiar with soil type, terrain, local plant growth habits, etc
- Come up with a state do plant/don't plant list (create a preferred plant list; create a substitute list if plants in preferred list are unavailable; create a "no use" plant list)
- State and counties need to adopt appropriate landscape plans/planting lists for their specific target areas
- Must continue aggressive educational programs for everyone
- Create an even playing field by adopting laws and creating mandatory requirements for everyone to follow
- State requires continuing education classes in licensing requirements? Handled through DDA, like nutrient mgmt.
- Will be most effective with a regional approach with all surrounding states following same protocols
- Make a documentary video with lots of photos but…preaches to the choir (people who would watch it are already aware)
- Incorporate into education system (school children tell parents) about biodiversity and invasive plants
- Photos of problems to convince consumers at point of purchase
- Work with Master Gardeners and garden clubs
- Public gardens should be considered as education venues
- Repetition is the key (gardening publications, newspaper articles, wider distribution of brochures (libraries and supermarkets), radio, TV)

- Industry desire to deal with problem w/o legislation, but legislation creates clarity and fairness

Theme: Assessing the Plants for a Livable Delaware Program

Education is preferred to regulation.
- If regulation were to happen – we would need education – consumer education via workshop and signage.
- Catalog companies can be monitored but difficult. Some mail order companies are better at policing themselves than others.
- Agreement would be needed from surrounding states.
- Education needs to filter down from landscape industry to service industry.
- Landscape architects need to be trained
- Signage needs to be easy. Finished products must be available in standard industry sizes.
- Require all retailers to have signage – or else banning/regulation
- Growers need to be convinced of benefits of change.
- Growers are trending away from certain invasives and problematic plants

Customer behavior:
- Behavior has changed due to PLD.
- Yes and no was the response from one group;percent change overall has been small
- money still seems to be the bottom line for customers (cheaper plants let them buy more at a time, a flat of vinca covers more area than a quart pot of another alternative)
- Garden center employees help by steering people to Livable DE plants
- Gardeners are more informed these days
- Homeowners are trending to native and low maintenance gardens/yards
- PLD information needs to be given to realtors and new developments

Suggested improvements to PLD program:
- Type/font needs to be more prominent
- Too much info crammed into a small space
- Logo is distracting
- Needs better signage; standard industry
- Posters larger, more of them, standardized format at entrance. More fun, eye catching, simple. Lamination doesn't work in the rain
- Caution signs and alternatives must be placed with plants
- Need photos of alternatives at point of purchase for invasives
- Need incentive for garden center to participate; funding for labels/signs
- Better landscaper training to help them use program as a selling tool to rid people of invasives
- Use licensing to educate landscapers (tools include state licensing/municipalities/insurance)
- Use positive re-enforcement (i.e. energy star) for businesses that participate
- Provide advertising for participating businesses – promote "Invasive Free" nurseries/ websites like Dept of Ag, DNLA
- Develop "Good Guy" image and distribute widely, make generic and distribute widely

Controlling Backyard Invaders:
- Not a good sales tool – too complicated
- Designed for people with large properties. Not for 1/3 – ½ acre properties.
- PDF to garden centers with target and/or fact sheets that can be given to customers and landscape customers
- People are afraid of chemicals – how much; concentration; timing; they want instant results
- Beach homeowners are clueless about the wall of phragmites and the fire hazard that it represents. Envirotech is Sussex Co. company that specializes in environmental removals

Awareness of other programs:
- Backyard Habitat
- Habitat stewards need to be more aware
- Governmental employees and citizen working groups – Milford porcelain berry working group
- Rehoboth city ordinance – plant recommendations – more native driven

Creative next steps:
- Future booklet needed for new construction. Currently focusing on established older homes.
- Promote the CNP program. Homeowners encouraged to seek certified professionals. Use certified professionals as authority as to what needs to be removed and what should be planted.
- State fair – plant exchange (similar to a gun exchange). People love free plants
- Beauty contest to select alternatives closest to burning bush and barberry
- Smokey the Bear, Woodsy the Owl. Need to have our own poster critter. Have a contest to select and name the critter.
- Work with Delaware Nursery & Landscape Association, state & local governments, developers and real estate companies (offer packages to be handed out to new homeowners)
- Create lists – black list only of prohibited plants ("Not Livable for Delaware" – this will be a shorter list and might be easier to remember)
- Develop new educational programs to encourage use of new plants packages work through local garden centers & plant sales outlets promoting appropriate plants for landscaping in the area
- Offer more educational/promotional information through more garden centers/plant outlets in each county. The original promo only included one garden center per county. This may not reach enough people.
- Cooperative advertising for participating nurseries handled through DNLA

Theme: Regulations
- Regulations are a last resort- people don't like to be regulated
- Upside – regulations level the playing field. "We don't carry it because we can't carry it. Neither does the garden center down the street."
- Unfair to regulate growers. Would need to regulate state garden centers and landscapers.
- How would you enforce – DDA? They'd prefer not to enforce, but for businesses to comply.
- Before we would launch and reg., we should further explore the nuisance weed law.
- Voluntary regulations work on the local level, but not on big box stores. We have the knowledgeable staff. Big boxes kill voluntary.
- How would you regulate the big boxes? Too much turnover (difficult for DDA inspectors to establish relationships); operate by zones or corporate. No two of the boxes operate alike.
- We would need to prioritize what plants can be problems and to what degree.
- Always new plants that are players in the problem game.
- How to regulate plants already out there? Can't grandfather because they're the ones causing the problems. Yet impossible to enforce. Maybe explore what FL does – prior to selling property, removal of melaluca is required. This is somewhat similar to DE's nuisance plant law. Similar to asbestos removal for homes sold.
- How would you monitor community open spaces? Who's responsible?
- How do you handle environmental groups that are tree-huggers like the Audobon society?

- Private landholders – cost/share program for control. Apply – permitting/approval program. Some type of control necessary.
- Would a tax work on invasive species in commerce? Profits/revenue could be put into cost-share. Would cause attention. A sin tax. Would help reduce demand. Would steer developers and homeowners away from these plants. How would you implement?
- Education is not the only answer. Need urban extension agents.
- Who is responsible for writing regulations and what kind? Have representatives from all aspects of the green industry help develop a local list of alternate plants, ANLA input, university input
- Regulations should apply to everyone in the trade (ie. distributors, sellers, growers, traders, etc)
- More people should be accountable for the plants they handle
- Grace period for removal of all existing plants in the landscape – voluntary; a phase out period initiated to get rid of invasive stock – 3 to 5 years should allow ample time
- Could give vouchers for plant replacement good for up to 3 years – could face fines for noncompliance
- Develop data to show impacts of invasive plant
- Should all cultivars/varieties be labeled as "invasive" until proven otherwise – would be safest way
- Need enforcement strategies – will cost $
- Law gives credibility to idea--Supports people 'doing the right thing'
- How would a law get passed?

MANDATORY EDUCATION FIRST – REGULATION LAST

HERBICIDE MOVEMENT AND PHYTOTOXICITY IN CONTAINER MEDIA

Jeffrey Derr, Professor of Weed Science
Lori Simmons, Research Assistant
Virginia Tech

Preemergence herbicides, especially members of the dinitroaniline class, are commonly applied to container-grown nursery stock. Dinitroaniline herbicides inhibit the development of new roots in susceptible plants, and can injure nursery crops. Through research supported by the Virginia Nursery and Landscape Association, we assessed the ability of pendimethalin to affect root development in container production. Pendimethalin is a dinitroaniline herbicide sold under the trade names Pendulum, and Corral, among others, and is a component in OH_2. We observed that the new root volume increased at a slower rate when pendimethalin was applied to the growing medium when compared to untreated pots of azalea. Length of the new root zone and root ball circumference were also less in pots treated with pendimethalin. When pendimethalin was applied to the pine bark growing medium, new roots began to develop between 1 and 2 inches below the surface of the growing medium, indicating that pendimethalin had leached to that depth.

To prove that pendimethalin was leaching down into the growing medium, and thus inhibiting nursery crop root development in the upper inch of pine bark, we conducted leaching trials in soil columns. We also wanted to compare the leaching pattern of this herbicide in pine bark compared to field soil to see if there were any differences. Three experiments were conducted to evaluate depth of pendimethalin movement in pine bark and field soil at two different irrigation volumes. Pendimethalin moved downward into the 2.4 to 3.5 inch depth in 100% pine bark following 7 inches of irrigation, while no movement was detected below the 0 to

1.2 depth in a Tetotum loam soil, as determined by a large crabgrass bioassay. Doubling the irrigation volume did not significantly increase pendimethalin movement in pine bark or field soil. However, it did decrease pendimethalin persistence in the top 0 to 1.2 inch depth in the pine bark.

We conducted an analysis of the chemical and physical properties of pine bark and field soil to try to explain the differences in leaching pattern. Physical analysis included particle size distribution, bulk density, hydraulic conductivity and volume of voids. The following chemical analyses were performed: pH, CEC, % organic matter, and % organic carbon.

Particle size analysis found that the majority of pine bark particles were greater than 1.0 mm in diameter, while only 29% of the field soil particles were that size. No soil particles were larger than 2 mm, while 50% of pine park particles were larger than 2 mm. CEC increased with decreasing particle size for pine bark. On a volume basis, CEC for pine bark was approximately twice that of the field soil. However on a weight basis, the CEC for pine bark was approximately nine times the capacity to exchange cations than the loam soil.

Pine bark has a higher capacity to absorb cations than field soil. However, pine bark's physical characteristics of a large volume of void space and low bulk density result in higher hydraulic conductivity rates than in field soil. The high percolation rates and large volume of macropores in pine bark seem to be the main contributing factors to greater pendimethalin leaching in pine bark compared to field soil.

We hope to expand this line of research to compare the movement of additional herbicides in container media.

YELLOW AND PURPLE NUTSEDGE MANAGEMENT IN NURSERY PRODUCTION

Jeffrey Derr, Professor of Weed Science
Virginia Tech

Yellow nutsedge continues to be one of the most troublesome weeds in the field nursery production. It propagates readily through the production of rhizomes and stolons and can be spread throughout fields through cultivation. It begins to emerge in April and is persistent throughout spring and summer before it goes dormant in fall. Yellow nutsedge is difficult to eradicate since it propagates through rhizomes and tubers. Tubers have a dormancy mechanism, making it difficult to achieve complete control. Not all tubers sprout in the same month – shoots emerge from April through August. Control of parent, as well as, daughter tubers are the key to long term success in managing this weed. Yellow nutsedge can also contaminate growing media used for container production, but more commonly infests gravel areas underneath container stock. Yellow nutsedge is also a persistent and troublesome weed in landscape maintenance.

Purple nutsedge is primarily a weed in the southern and eastern parts of Virginia, as this weed is more common farther south. Purple nutsedge's range, however, appears to be expanding. Purple nutsedge is even more difficult to control than yellow nutsedge. There are limited control options for yellow nutsedge management in field and especially in container production, especially production of perennials.

Yellow nutsedge has shiny yellowish-green leaves, a long, sharp leaf tip, a yellowish-colored seedhead, and tannish-brown tubers at the ends of rhizomes that are sweet to the taste. Purple nutsedge has shiny, dark green leaves, a blunt leaf tip, a purplish-brown seedhead, dark brown tubers found in chains along the

rhizomes, and tubers have a bitter taste.

Yellow nutsedge can be suppressed through preemergence applications of Pennant Magnum. This chemical does not provide postemergence yellow nutsedge control and it does not control purple nutsedge. Repeat applications of Pennant Magnum are needed during the growing season to maintain residual control since it only lasts about 2 to 3 months in soil. Basagran can be used as a directed spray in woody nursery crops for control of yellow nutsedge. Only a few species tolerate overtop applications of Basagran. Repeat applications are needed since this chemical has predominantly a contact effect and it provides no soil residual control of yellow nutsedge. Like Pennant Magnum, Basagran does not control purple nutsedge so proper sedge identification is important when choosing a control option. I had visited a nursery a few days ago that complained they were not seeing the yellow nutsedge control they used to see with Pennant. They had converted their weed problem from predominantly yellow nutsedge to predominantly purple nutsedge since Pennant selectively removed yellow nutsedge, leaving purple nutsedge to flourish.

The nonselective herbicides Reward, Finale, and glyphosate (Roundup Pro, others), can be used for postemergence nutsedge control. These chemicals have to be reapplied since they provide no soil residual control. Since Reward is strictly contact, it will not affect underground tubers and rhizomes. Glyphosate has greater systemic action than Finale so it is the preferred herbicide for nutsedge control. Glyphosate, however, poses the greatest potential for injury to nursery crops due to its systemic action. Some growers tell me that glyphosate does not control nutsedge but it has worked well in my trials. Some things to remember when applying glyphosate or other postemergence herbicides:

1. Apply when nutsedge is actively growing under good soil moisture conditions. Applications during drought may result in unacceptable control.

2. Treat under warm conditions (ideally over 60^{o}F since nutsedge does not grow well in cold weather and thus may not absorb and translocate the chemical to the same extent it would under warmer air temperatures, and

3. Realize that repeat applications will be needed to control nutsedge shoots that emerge after application. One could combine Pennant Magnum with a postergence herbicide to provide both preemergence and postemergence control.

Hence there is a need for additional products to control sedges in nursery crops. I am especially interested in any postemergence products that could be applied overtop ornamentals for nutsedge control. Through research supported by the Virginia Nursery and Landscape Association, I have been evaluating experimental herbicides for sedge control. Some of my colleagues across the country are also researching this area.

SedgeHammer (halosulfuron), which was formerly sold under the trade name Manage applied overtop nursery crops caused no injury to yaupon holly, Burford holly, azalea, and gardenia, but chlorosis and stunting was observed in spirea, liriope, cotoneaster, and viburnum. Significant injury was caused by SedgeHammer to *Gypsophila*, rose, and liriope. Currently SedgeHammer only is labeled for use as a directed spray in landscapes. Hopefully through the research being conducted by myself and my colleagues, the manufacturer will add a directed spray use for nursery production of woody ornamentals. There does appear to be potential for overtop applications to certain woody nursery crops. SedgeHammer has provided effective postemergence control of

yellow and purple nutsedge in my trials.

I evaluated a granular form of the herbicide sulfentrazone, another compound with activity on yellow nutsedge. Granular sulfentrazone was safe on all woody species tested but it injured ice plant and liriope. In another trial, a sprayable form of sulfentrazone was safe on *Gypsophila* but injured azalea, spirea, crape myrtle, viburnum, liriope, cotoneaster and *Rosa*, although all plants except liriope recovered. Spirea had moderate to slight injury which, by 4 weeks after the second timing, was slight at low rates and moderate at the highest rate. Granular sulfentrazone did not provide acceptable control of yellow or purple nutsedge, although it did control rice flat sedge, an annual sedge that I had in the trial. Sprayable sulfentrazone has controlled yellow nutsedge through postemergence application in my research. Repeat treatments were needed for acceptable purple nutsedge control. A numbered compound that I tested caused significant injury to liriope, spirea, abelia, cotoneaster, salvia, ice plant, Mexican heather and lantana, but not *Ilex* spp. or gardenia. This chemical seems to have less potential than SedgeHammer or sulfentrazone.

These data suggest that the granular formulation of sulfentrazone has potential for safety to a diversity of woody ornamentals. Additional research is needed to improve the level of sedge control. SedgeHammer looks promising for overtop application to certain woody nursery crops for sedge control. More research is needed on the level of tolerance in other woody nursery crops.

Preceding two articles excerpted from VNLA Newsletter*, November-December 2006.*

SEVEN PLANTS START OUT THE NEW YEAR BY TAKING HONORS

The Perennial Plant Association (PPA) named *Nepeta* 'Walker's Low' ("Walker's Low' catmint) its 2007 Perennial Plant of the Year. It has aromatic, silver green foliage and dark blue-purple flowers from late spring to frost if pruned back by two-thirds when the initial flowers fade.

N. 'Walker's Low' is 36 inches tall by 30 to 36 inches wide and is hardy in zones 3-8. This perennial performs best in full sun in well-drained soil, preferably with a neutral pH. *N.* 'Walker's Low' is a good companion for early and late-blooming plants. It can be used in perennial borders, herb gardens, rock gardens, containers or as a groundcover.

N. 'Walker's Low' will bloom continuously throughout the season if properly pruned. It can attract bees, butterflies and other pollinating insects, but is deer- and rabbit-resistant. Leaves release a wonderful aroma when crushed.

"The Perennial Plant of the Year program helps consumers select plants that perennial industry experts find to be outstanding and easily grown," PPA executive director Dr. Steven Still said in a press release.

Hemerocallis 'Lavender Vista'™ ('Lavender Vista'™ daylily) was named the 2007 winner of the All-American Daylily Selection Council (AADSC) test program. It pairs profuse, clear lavender blooms with lush, evergreen foliage. This daylily can be combined with pink, lavender and purple companion plants.

Blooms are 5 to 6 inches across with a green throat and rest upon 20- to 24-inch scapes. The vigorous, arching foliage is 16 to 22 inches tall, and the masses of blooms are held just above these uniform mounds. *H.* 'Lavender Vista'™ blooms are average of 88 days per year, tolerates

more shade than most daylilies and can be used on slopes, as a border or in containers. It is hardy in zones 4 to 11.

The title "All-American Daylily" is given to rare daylily varieties that have demonstrated superior performance in dozens of criteria across at least five USDA hardiness zones. Since 1989, the AADSC has operated a network of test sites throughout the US and has collected data on more than 50 daylily performance characteristics. Daylilies are tested for at least two years, with finalists being grown for another three to five years in open field conditions before being announced.

To celebrate its 75th Diamond Anniversary this year, All-America Selections (AAS) has named five previous AAS Winners as All America Classics. The plants include *Dianthus* 'Ideal Violet' ('Ideal Violet' F1 dianthus), *Petunia* 'Ultra Crimson Star' ('Ultra Crimson Star'F1 petunia), *Petunia* 'Wave® Purple' ('Wave Purple' F1 petunia) and *Viola* 'Majestic Giants Mix' ('Majestic Giants Mix' F1 pansy), as well as *Lycopersicon esculentum* 'Big Beef' ('Big Beef' F1 tomato).

D. 'Ideal Violet' will grow approximately 10 to 12 inches tall by approximately 12 inches wide. It can color fall and winter gardens with 1 1/2-inch, single violet blooms while withstanding considerable cold. In northern areas, this plant deserves a place in the early spring garden next to pansies and violets. Easy to grow wit minimum garden care, *D*. 'Ideal Violet' is recommended for any container planting.

P. 'Ultra Crimson Star' features pure white stars on large, crimson grandiflora flowers. Blooms measure3 to 4 inches wide. This plant flowers freely all season with minimum garden care. Pinching or pruning is unnecessary.

P. 'Wave® Purple' grows along the soil, like an ivy groundcover. By August, the stems radiate in all directions, growing 4 to 6 inches tall by 3 to 4 feet wide. Its habit, vigor and continuous flowering are unique traits for a petunia.

V. 'Majestic Giants Mix' sprouts large, 4-inch blooms with the traditional pansy face. It was the first pansy that did not require cool temperatures for flower initiation. In the South, seed can be sown in the summer, and the fall flowers naturally will occur without an artificial cool treatment. *V*. 'Majestic Giants Mix' grows approximately 6 to 8 inches tall and is adaptable to full sun or partial shade. It will perform in a garden or in a container. This classic mix offers a wide range of colors, from blue, scarlet, cherry red, yellow and orange to pure white.

These plants were all featured in American Nurseryman*, January 1, 2007.*

IRS ENACTS NEW RULES FOR IMMIGRATION WAGES

The Internal Revenue Service announced a new rule regarding the amount of income tax employers must withhold from wages paid to nonresident alien employees, according to *Fed. of Employers & Workers of America* (FEWA). As of January 1 of this year, IRS can impose interest and penalties on employers of nonresident aliens for underpaying income tax withholdings according to the new rules. FEWA advises employers of such workers to contact a tax consultant. You can read Notice 2005-76 at the IRS website: www.irs.gov/irb/2005-46_IRB/ar10.html

Weekly Nursery E-Mail, Todd Davis, tdavis@branchsmith.com

ON-LINE RESEARCH INFLUENCES IN-STORE PURCHASES

Sales in brick-and-mortar stores are increasingly being influenced by online browsing, according to a report from Jupiter Research, reported in E-commerce Guide. Sales prompted by online research are expected to show a compound annual growth rate of 12 percent over the next five years. Online-influenced sales will reach 40 percent by 2001. "The key for retailers is to create clear, simple and convenient links to be the off-line channels that persuade shoppers to stay with them as they cross channels" said David Schatsky, President of parent company Jupiter Kagan.

GCA LAUNCHES BUSINESS BAROMETER PROJECT

Garden Center of America launched a multi-year benchmark project in December to routinely gather information on members' sales levels, percentage increase/decrease from the previous year and reasons behind the fluctuations. "one way for our garden center members to increase profitability is to respond to marketplace influences and opportunities by adjusting pricing, inventory levels and operational expenses," said GCA President Sandi Hillerman McDonald in a letter to members. Results of anonymous surveys will be available to all members to help gauge the business climate. By 2009, GCA hopes to have a virtual operating cost benchmarking system delivered to members in a real-time format.

Weekly Garden Center Dirt, Carol Miller, cmiller@branchsmith.com

GREEN ROOFS EXTENDING OUR ENVIRONMENT AND OUR INDUSTRY

Tom Barrett

In the United States, green roofs are making an increasingly visible impact on our urban construction projects and can provide an opportunity for our industry. The city of Chicago has over 150 green roofs consisting of more than two million square feet. Chicago is committing to be the "greenest" city in America. Michigan is not far behind. Green roofs make a large impact on creating a "green" community.

What is a Green Roof?

Simply, a green roof is a roof with vegetation installed. At first, this concept may seem like a novelty but further investigation proves that green roofs are an innovative, environmentally friendly solution to growing problems of American urbanization. Vegetated roof surfaces significantly reduce the effects of storm water runoff, minimize the urban heat island problem, and can decrease the building's energy consumption. Green roofs have been around for centuries. In Germany during the 1970's, advances in construction technology created a renewed interest in the benefits of green roofs. In Germany, this concept is growing at a rate of 15% annually. This is creating an entirely new industry for the construction and servicing of green roofs.

Building "Green"

Leadership in Energy and Environmental Design (LEED) is a green building rating system developed by a coalition of the building industry leaders through the United States Green Building Council (USGBC). Sustainable, high performance, environmentally responsible construction projects are a growing trend. Green roofs are a significant component in

environmentally responsible construction. The University of Michigan recently published a booklet entitled "*Building Green for the Future – Case Studies of Sustainable Development in Michigan"* by Urban Catalyst Associates, featuring eleven green projects in Michigan. LEED is quickly becoming a national standard for high-performance, sustainable buildings.

The LEED program has captured 3% of the entire U.S. building market and is growing rapidly. Currently, there are over 20,000 registered accredited professionals (APs) in this program. "This is an exciting time for green building and LEED," said Rick Fedrizzi, USGBC President and CEO. "Our members, chapters, and 20,000 LEED APs are changing the way we think about buildings. In five short years, LEED has transformed the way buildings are being built and maintained by giving the industry a way to verify and benchmark the performance of a green building." There are over 2,600 registered projects in this program.

Green Roof Construction

The construction of a green roof is similar to the construction of a conventional roof, but with two important differences. First, the saturated weight of the soil must be considered for the structural requirements of the roof. Typical soil weights 100 lbs. per cubic foot. The green roof industry has developed specially engineered, light-weight planting media mixes consisting of organic matter, sand, pumice, expanded clay or slate. Planting media has been developed that will add as little as 10 to 50 pounds per square foot. The supporting structure for the green roof must be designed with the additional load from the planting media taken into consideration.

Second, the asphalt-based roof membrane must be covered with a high-density polyethylene membrane to prevent roots from growing into the roof. Asphalt is an organic compound and can be utilized by the plants. If left unprotected, roots from the plants will grow into the asphalt compounds used to waterproof the roof surface. The basic green roof construction consists of waterproofing drainage, soil, and plants. The bottom-most layers on both a conventional gravel-ballasted roof and a green roof are the same. The first layer is insulation, then a moisture barrier and a waterproofing membrane. After the waterproofing membrane, the two structures begin to differ. On the conventional gravel-ballasted roof, the next layer is protective membrane and gravel.

On the green roof structure, the moisture barrier is covered with a root protective membrane such as high-density polyethylene. Then a drainage material is installed followed by a filter fabric that prevents the plant media from migrating into and possibly clogging the drainage. The soil media is then placed on the roof and finally the plants are established.

There are also grid and mat systems available for green roof installations. These are special plastic trays or mats with the root barrier, drainage, soil media, and plants already established. Grid and mat systems can be easier to install than directly placing the planting media and plants on the roof.

Intensive and Extensive Green Roofs

The depth of the planting media and the variety of plants installed vary depending on the function of the roof. There are two generally accepted types of green roofs. The first and most common green roof is an intensive green roof. An intensive green roof is aesthetically pleasing and serves as a roof top garden area. This roof utilizes at least 12 inches of planting media, accommodates large trees and shrubs, and has well-maintained gardens. An intensive green roof is a park-like setting on top of a building. Pedestrian access is encouraged. This

green roof system has an extensive drainage and irrigation system. An intensive green roof may add 80 to 150 pounds per square foot to the roof load.

An extensive green roof is the second type of vegetative roof system constructed today. This green roof system requires one to five inches of planting media. It is typically planted with alpine-type grasses, perennials, and ground covers which are capable of surviving in unusually harsh conditions. These plants must be able to exist with little soil, infrequent water, high winds, and extreme sun exposure.

Sedum is commonly used in extensive green roof plantings but there are hundreds of plants that can be successfully utilized for a green roof. There are perennial nurseries that specialize in green roof plant material. An extensive green roof is usually not designed for public access, adds only 10 to 50 pounds per square foot, and requires little maintenance after establishment.

A drip irrigation system is an excellent method for establishing a green roof. A subsurface drip system applies water directly to the root zone, keeping soil surface dry and discouraging weeds. Even on an extensive green roof, drip tubing can aid in establishing the plants and can be utilized in extremely dry summers. Fertilizer can also be applied with an injection through a drip irrigation system.

A green roof can even be installed on an existing roof if the structure can support the additional load. The existing roof must be thoroughly inspected to determine if the existing membrane needs to be repaired or replaced. Green roofs do not need to be flat. A pitched roof actually improves drainage. Vegetation can be established on inverted and pitched roofs. If the roof is pitched beyond 20 degrees, then it is important to make sure that the planting media does not slump or slip when it becomes wet.

Cost estimates for a green roof vary widely depending on the type of vegetative roof system installed. There are no standard cost estimates available. However, the initial increase in cost for a green roof can be significantly offset by an increase in the life expectancy of the proof membrane. A green roof can extend the service life of the proof system by up to 20 years or double that of a conventional roof because of the ultraviolet radiation protection and heat buffering provided by the vegetation cover.

Leaks on a green roof system are less likely than on a conventional roof because the waterproofing membrane has an additional level of protection from the green roof. New technology in roof leak detection and electric field vector mapping can quickly and accurately pinpoint leaks.

Stormwater Retention

There are several important reasons for constructing a vegetative roof surface. Property acquisition cost can be significantly reduced because of the storm water retention capabilities of a green roof. Runoff from a rainstorm can be reduced by 50 percent with two inches of planting media. Both stormwater quantity and quality are greatly improved with a green roof.

In urban environments, because of the large areas of impervious surface coverage, 75 percent of water from a rainstorm can become surface runoff. This has a tremendous impact on lakes and streams, requiring an extensive stormwater drainage system for our cities. A green roof can absorb up to 100 percent of a one-inch rainfall. On average, green roofs absorb 75 percent of most rainfalls and return the water to the atmosphere, completing the natural rainwater cycle. This prevents flooding in streams and overloading storm drains.

For developers, less land needs to be developed

or acquired for stormwater retention. On a large retail shopping center, up to one-third of the property developed may be required for stormwater retention. A typical Home Depot warehouse store averages 106,000 square feet or 2.4 acres in size and has a large impervious parking lot. The rainwater from the roof and the parking area must be collected and retained to prevent flooding to local streets and streams. In areas with high property values, the cost of storm water retention is significantly reduced through the use of green roofs.

Energy Savings

A vegetative roof surface significantly reduces the cooling and heating requirements of the top two floors of a building. On a typical summer day on a conventional roof, the temperature of the roof is much higher than the temperature of a green roof. The insulation effect of green roof can result in a 50 percent reduction of air conditioning usage for the floor directly under the roof and a 25 percent reduction for heating. Additionally, the high temperature of a conventional roof surface contributes to the creation of ozone, a component of smog.

Urban Heat Islands

The air temperature around most cities can be 10^{o}F warmer than the surrounding communities. The buildings and streets of a city absorb more heat because of the loss of the natural environment, trees, and shrubs. Urban heat islands cause an increase in air conditioning demand, resulting in higher energy consumption. In a study of the city of Chicago, conducted by Weston Solutions, Inc., estimates suggest that if all of the roofs in downtown Chicago were converted to green roofs it would save over $100 million annually in energy costs. Peak demand would be reduced by 720 megawatts or the equivalent of one small nuclear power plant. Additionally, ground level ozone can be significantly reduced.

Additional Benefits

The reduction in stormwater retention, energy usage, and urban heat islands are three of the most important benefits created by green roofs. There are several other noteworthy benefits. Green roofs will reduce noise, increase the service life of the roof, and are aesthetically and environmentally friendly. Noise attenuation from a green roof can reduce noise from traffic and machines by forty decibels. Green roofs contribute to a healthier environment.

Ford Motor Company at the Truck Assembly Plant in Dearborn, Michigan installed the largest green roof in the world. Completed in November 2002, this project holds a record, as cited in the 2004 Edition of *Guinness Book of World Records,* as the "World's Largest Living Roof." The vegetative roof covers 464-000 square feet or 10.6 acres.

Since 2000, Michigan State University (MSU) has been developing an extensive green roof research program. This program is a collaborative effort initiated with Ford Motor Company. MSU has created 48 roof top research test plots at the Horticultural Teaching and Research Center. The roofs of the Plant & Soil Sciences Building and the Communication Arts & Sciences Building are living laboratories for numerous research projects on stormwater runoff, water quality, and plant selection.

The benefits of vegetative roof surfaces are well documented and research is improving the green roof concept both locally and nationally. Green roofs can be established on almost any building. The larger the roof the greater the benefit. Green roofs have been successfully installed on government buildings, factories, condos, shopping centers, private office buildings, university buildings, and private residences. In

the United States, green roof technology is emerging as an outstanding resource for creating a healthy more sustainable environment and creates a unique business opportunity for landscape contractors.

Additional Resources:
Greenroofs.com
3449 Lakewind Way
Alpharetta, Georgia 30005
Phone: 678-580-1965
Toll free and fax: 888-477-1326
www.greenroofs.com

Michigan State Green Roof Research Program
Bradley Rowe, Ph.D.,
Michigan State University
Dept of Horticulture
A212 Plant & Soil Sciences Bldg.
East Lansing, MI 48824
Phone: (517)355-5191, x 1334
www.hrt.msu.edu/greenroof

Green Roofs for Healthy Cities
177 Danforth Ave., Suite 304
Toronto, Ontario Canada M4K 1N2
Phone: (416)971-4494
www.greenroofs.org

U.S. Green Building Council
1015 18th Street, NW, Suite 508
Washington, DC 20036
Phone: (202)828-7422
www.usgbc.org

Tom Barrett is a District Manager for Netafim. He can be contacted at (317)709-1107 or tbarrett@netafimusa.com

Excerpted from The Michigan Landscape*, February 2006.*

TREE TOPPING
Dwayne D'Ardenne, CGM, Landscape Coordinator

A contractor questions the theory that topping is bad in the January issue of Tree Services trade magazine. I love the way his question starts – HA! "What trees will straight up die from topping? What trees will suffer greatly and decline in overall health?" He goes on to question the theory based on observations in New York after a "wicked" ice storm back in 1998 because many of those severely damaged trees are very alive and "healthy" today.

The response goes like this:
It is not so much that topping will kill the tree outright, but that the new sprouts are just facially attached, succulent and fast growing. Also since the new sprouts come from latent/dormant buds, they grow in a disorganized fashion, competing for space and resources. Then there is the decay problem, since topping cuts are usually internodal, instead of proper nodal [branch collar] cuts where there is more stored energy to facilitate compartmentalization. Compartmentalization is the tree's natural process for sealing over wounds. Trees do not heal like we do. They wall off and then seal over wounds. Combine the facial attachment (branch bases should be anchored down into the stem – think of a knothole in a cross section), the fast growing nature of sprouts and this poor compartmentalization, and you have a much higher risk of storm failure and insect/disease infestation in the future.

So to sum it up in shorter way, topping is poor management because it works against the natural growth patters of the plant and increases the risk of failure over the long term.
For more information: TreesVirginia.org

Excerpted from VNLA Newsletter*, Janaury/February 2007.*

GREENHOUSE POLY RECYCLING

The following items are acceptable for recycling by Green Industry Recycling:

- 12 or #5 pots
- Greenhouse film – clear or white
- #6 plug trays
- Any other item that is coded #2, #5 or #6
- Other items will be evaluated upon seeing a sample

Packing:

- Pots and trays should be tapped free of most dirt, nested, stacked on a pallet 8 feet high and stretch-wrapped.
- The nursery should try to maximize the amount on each pallet
- Film can be tied in bundles, rolled and tied, or baled. If palletized, stack 8 feet high. Or, the film can be stacked on the truck – trying to minimize the space uses.

Pickups:

- We pay the freight.
- Minimum pickup is 7 pallets. For less than trailer loads, we find another nursery to fill up the rest of the truck. So, it may take a few days to schedule the pickup.

Payments:

- The value of each type of plastic fluctuates during the year. At the moment, the values are down 33% since the early fall.
- Payments are based on the type of plastic, the condition of the plastic, the total weight of the plastic and the travel distance. For someone shipping the minimum of 7 pallets, or under 5000 pounds there will be no payment. Locations closer to our facility will be paid more than those further away.
- Full trailer loads will earn the most – generally $.02-$.04 per pound for pots and trays and $.03-$.06 per pound for film. Full trailer loads should generate at least 20,000 pounds for pots and trays and 30,000 pounds for film. Lesser weights are based on a sliding scale for payments.
- Prior to a pickup, we will estimate the per pound price we will pay – subject to weight verification.

SteveWasserman, Green Industry Recycling, 410-374-2196

Research Briefs

Greenhouse production

***Schlefflera arboricola* growth in interior landscapes**. This study showed that plants exposed to low light intensities (10 umol/m^2/s and 20 umol/m^2/s) had reduced life span and quality, especially at higher temperatures. Plants lose their marketability within six months. (A. Kubatsch, H. Grungerg and C. Ulrichs)

Excerpted from HortScience *Vol. 42(1):65-67, February 2007.*

Light and temperature conditions for enhanced orchid growth and flowering. *Doritis pulcherrima* Lindley require a relatively warm environment for vegetative growth. In these studies, the best vegetative growth was achieved at the highest temperature regime (30/25 or 30/20 D/N temp in C). Once plants have reached maturity, a relatively cool environment is needed to promote the emergence of flower stems (spiking). Maximum spiking (flowering) occurred at the lower temperature regimes (20/25 and 15/25 D/N temp in C) with some spiking at 25/20 in one study. (Y-T Wang)

Excerpted from HortScience *Vol. 42(1):68-70, February 2007.*

Coloration and growth of croton with cotton gin trash compost use in the potting medium. When peat is replaced by cotton gin compost (CGC) in a peat-perlite medium there is an increase of bulk density and total solids resulting in a decrease of total porosity and readily available water. Media with a high percentage of CGC hold less water in saturation and drain faster. Water stress increases anthocyanin and results in more red coloration. Plants in this study never showed any symptoms of water shortage, though. This work suggests that CGC can replace up to 50% of peat in a potting mmedium with perlite, giving croton plants of quality similar to that obtained in the commonl ued peat-perlite medium. If the public accepts croton plants with more red coloration, as much as 75% CGC could be used. (M. Papafotious, B. Avajianneli, C. Michos and I. Chatzipavlidis)

Excerpted from HortScience *Vol. 42(1):83-87, February 2007.*

Micronutrient availability in fresh and aged Douglas fir bark (DFB). Annual vinca plugs transplanted into fresh or aged DFB grew similarly. None of the plants developed color symptoms associated with micronutrient deficiencies. DFB micronutrient content should be considered in the nutrient management plan. (M. Buamscha, J. Atland, D. Sullivan and D. Horneck)

Excerpted from HortScience *Vol. 42(1):152-156, February 2007.*

Water use and fertilizer response of azalea using several no-leach methods. Currently, capillary wick irrigation (WCK) is used primarily for maintenance irrigations of interior plants and the technology has not been developed for large-scale commercial plant production. However, these results suggest it has the potential to be an effective zero-leach irrigation method producing quality azaleas, a crop that can be sensitive to excessively wet substrates. WCK (capillary wick irrigation) by providing consistent substrate moisture levels, may improve fertilizer N efficiency compared with subirrigation (SUB). However, this was not the case as azalea growth response to N was similar for both SUB and WCK, although periodic PT EC levels were higher for WCK compared with SUB. From this research, it was concluded that the growth of azaleas, which is

sensitive to fertilizer salt and excessive water contents, can be grown successfully with capillary wick irrigation and at fertilizer rates comparable to subirrigation generally regarded as a fertilizer efficient irrigation method. (J. Million, T. Yeager and C. Larsen)

Excerpted from HortTechnology *17(1):21-25, January-March 2007.*

Nursery Production

Ground pine chips as a substrate for container-grown woody nursery crops. Due to concerns regarding the availability of pine bark, alternative substrates fro container nursery production would be desirable. Results indicate that a container substrate composed of ground pine chips offers promise as a substitute for pine bark for a wide range of woody taxa. More research is needed to address fertility issues with pine chips before it can be fully recommended. Growth was not different between pine bark (PB) and pine chips (PC) in 13 of 18 species planted in April and in 6 of 10 species planted in May. Instances of reduced growth with PC compared to PB were attributed to reduced nutrient availability in PC compared to PB. These results suggest that with adjustments to fertility, PC can be a suitable substrate for container production of woody ornamental plants. (R.D. Wright, J.F. Browder, B.E. Jackson)

Excerpted from Journal of Environ. Hort. *24(4):181-184, December 2006.*

Nursery production of *Helleborus* x *hybridus*. Optimum growth of *Helleborus* x *hybridus* (Lenten rose) in a pine bark substrate can be obtained by maintaining an average substrate pH of 5.4 in combination of N fertigation at 40 to 160 mg/l using a 4:1:2 N:P:K formulation. Nutrient applications of 160 mg/l resulted in maximum topgrowth but a nutrient solution containing N at 40 to 80 mg/l applied with each irrigation will result in recommended foliar nutrient concentrations and is a good choice for a more balanced root and top system. Lenten rose is very tolerant of high pH, but there is no growth benefit to a pH above 5.4. (H.T. Kraus and S.L. Warren)

Excerpted from Journal of Environ. Hort. *24(4):207-212, December 2006.*

Pendulum 3.3 EC influence on azalea shoot and root growth. Pendulum 3.3 EC (and other herbicides in the dinitroaniline herbicide class) are commonly applied to herbaceous and woody container nursery crops for control of annual grasses and certain broadleaf weeds. The EC formulation of pendimethalin (Pendulum 3.3 EC) directly inhibits shoot and root growth in 'Tradition' azalea. Alternative formulations, especially granular types, should limit the potential for adverse effects on shoot growth. Delaying application until azaleas have developed a sufficient root system should minimize any adverse impact on root growth. (J.E. Derr and L.D. Simmons)

Excerpted from Journal of Environ. Hort. *24(4):221-225, December 2006.*

Postemergent liverwort control in container-grown nursery crops. Liverwort is a common weed in propagation and container-grown nursery crops throughout the U.S. Quinoclamine (Terracyte, BroadStar) is a new herbicide currently under consideration by the EPA for labeling as a postemergence herbicide on liverworts and mosses in grenhouse and nursery production. Data demonstrates that quinoclamine provides effective postemergence liverwort control. Control is improved when applied to light infestations in which liverwort is growing in a single layer covering < or = 25% of the container surface and without sporocarps.

As liverwort infestations expand, they often cover the entire container surface, grow in multiple layers on top of each other, and develop sporocarps. Multiple layers on top of each other, and develop sporocarps. Multiple layers and the presence of sporocarps reduces efficacy of quinoclamine. Cool temperatures 64 to 72 F, low UV light levels and abundant precipitation improve liverwort vigor, making them less susceptible to quinoclamine and other herbicides. Quinoclamine applied at 1.7 lb ai/A provides effective liverwort control when infestations are light or when environmental conditions reduce liverwort vigor (high temperatures and UV light. Quinclamine at 3.4 to 6.8 lb ai/A is necessary when infestations become more severe or when environmental conditions favor liverwort growth. A regular scouting program should be used to monitor liverwort population levels for timing of follow-up applications. (A. Newby, J.E. Altland, C.H. Gilliam and G. Wehjte)

Excerpted from Journal of Environ. Hort. *24(4):230-236, December 2006.*

Postemergent application of Diuron for yellow woodsorrel control in containers. Results of this research indicate diuron (Direx 4L) has potential to control yellow woodsorrel when applied postemergence over the top to dormant abelia, barberry, and spirea at rates as low as 0.5 lb ai/A while causing slight to no crop injury when applied as an over the top spray before active growth of the nursery crop begins. Diuron provides growers with an alternative to hand-weeding, especially when container-grown plants are emerging from over-wintering and yellow woodsorrel, a perennial weed that, while present throughout summer, grows best in spring and fall. (C.V. Simpson, C.H. Gilliam, G.R. Wehje, J.L. Sibley and J.E. Altland)

Excerpted from Journal of Environ. Hort. *24(4):237-241, December 2006.*

Soil fumigants to replace Methyl Bromide for weed control in ornamentals. A field study was conducted to evaluate fumigant alternatives for methyl bromide (MB). Iodemethane (IM), chloropicrin (CP), 1,3-dichloropropene (1.3-D), metham sodium (MS), and MB in various combinations were applied to a sandy soil field site. Some treatments were tarped. Plant injury, plant growth, fresh weight, and dry weight were evaluated for seven ornamental species: cushion spurge (*Euphorbia polychroma*), globe thistle (*Echinops bannaticus* 'Blue Globe'), common lavender (*Lavandula angustifilia* 'Hidcote Blue'), hosta (*Hosta* 'Twilight PP14040'), silvermound artemisia (*Artemisia schmidtiana* 'Silver Mount'), shasta daisy (*Leucanthemum* x *superbum* 'Snow Lady'), and threadleaf coreopsis (*Coreopsis verticillata* 'Moonbeam'). Most fumigants tested provided good weed control up to 20 months after application IM 50% + CP 50% (200 lb/acre, tarped) and MS (75 gal/acre, 1:4 water, not tarped) has the poorest control of most summer annual weeds. IN the first case, lower rate, and in the second case, no tarp, could be the factors that contributed to the inadequate weed control. Fumigants did not injure the ornamentals crops evaluated in this experiment, and some of the treatments increased plant size in two species. All of the fumigants tested appear to have potential to replace MG in ornamental production. They were safe to the ornamental species studied and they provided effective weed control. (R.E. Uhlig, G. Bird, R.J. Richardson and B.H. Zandstra)

Excerpted from HortTechnology *17(1):111-114, January-March.*

Nutrient release from controlled-release fertilizers (CRF). Release characteristics of four different polymer-coated fertilizers (Multicote, Nutricote, Osmocote and Polyon

were studied over a 47-week period in a simulated outdoor, containerized plant production system. Under the environmental conditions of this study, leachate chemical parameters of EC and NH_4^+, NO_3^-, K, and P concentrations of all CRF treatments were relatively high during the first half of the study and then decreased during the remainder of the experimental period—a trend that was not correlated with the seasonal fluctuations of air temperature. When comparing CRF types, Osomocote tended to have a more stable release pattern than the other fertilizer types, and Multicote had a more erratic release pattern that the other fertilizer types during the 47-week period. From a horticultural perspective, the nutrients released during the fist half of the study would probably be in excess of plant needs, even for fast-growing woody ornamentals. This would especially be the case in container production, in which plugs are transplanted into larger containers. Lack of an established root system prevents plants from taking up all the available nutrients but also means they aren't harmed by high EC values. During the second half of the production cycle, all nutrients released are absorbed by growing plants. Environmentally, the high nutrient release during the first half of the study suggest that the first few months of a plant production period are when nutrient leaching can occur and Multicote would result in the greatest risk for polluting runoff water (especially with excess P). Micronutrient release was also studied and found to be excessive during the first 4 weeks of production, but not harmful due to small root systems. Environmentally, Fe was the only micronutrient found to exceed the EPA standards during the first four weeks of the study. (J.P. Newman, J.P. Albano, D.J. Merhaut and E.K. Blythe)

Excerpted from HortScience *41(7):1674-1689, December 2006.*

Landscape

Pruning leads to increased incidence of freezing damage in abelia hybrids. The recommended time to prune abelia in the Southeastern U.S. is before spring growth initiates, yet actual pruning time is variable and dependant upon labor availability and plant appearance. The effect of mid-season pruning (July 3-4, 2003) on cold hardiness of six abelia genotypes (including the popular 'Rose Creek', Canyon Creek' and 'Sherwoodii') was studied. All genotypes with exception of 'Canyon Creek' were significantly more cold hardy in unpruned versus pruned treatments. Based on midsummer pruning data, we recommend that pruning not be carried out in summer because subsequent growth is not hardened off prior to winter. (M. Chappell, C. Robacker and O. Lindstrom)

Excerpted from Journal of Environ. Hort. *24(4):197-200, December 2006.*

Root ball conditioning of begonias at transplanting. Labor costs and availability are a major concern of the landscape services industry. Balance between labor constraints and recommended landscape practices must be achieved to ensure effective landscape management at a reasonable cost to both the consumer and supplier. Slicing rootballs of rootbound plants is often practiced to promote rapid growth during establishment. Most of the evidence is anecdotal. Results of this study indicate root slicing is not effective for new root development of increased canopy growth of annual bedding plants. Furthermore, smaller, non-rootbound plants established at faster rates compared to root-bound and root-bound plants that had been manipulated. Rootball manipulation of *Begonia semperflorens* is ineffective labor utilization and thus is not recommended. (S.M Scheiber and R.C. Beeson)

Excerpted from Journal of Environ. Hort.

24(4):213-217, December 2006.

Effect of watering regime on selected green roof plant taxa. Green roofs, or vegetative or living roofs, are an emerging technology in the United States. Because environmental conditions are often more extreme on rooftops, many xerophytic plants, especially *Sedum*, are ideal for extensive green roofs because they are physiologically and morphologically adapted to withstand drought. Crassulacean acid metabolism (CAM) is a physiological pathway that enables plants to adapt to water stress conditions. Because stomata are closed during the day, plant gas exchange occurs at night, this reducing transpirational water loss. CAM plants also have fewer stomata than C_3 and C_4 plants. This study showed that CAM species such as *Sedum acre*, *S. reflexum* and S. *kamtschaticum ellacombianum* do not require as much water to maintain plant vior and metabolic activity compared with the non-CAM species *Schizachyrium scoparium* and *Coreopsis lanceolata*. Some plants sustained photosynthetic activity over a period of 4 months without watering, although biomass was reduced relative to more frequently watered treatments. One can assume that under frequent watering regimens, the non-CAM plants can remain photosynthetically active and continue growth and development. However, they need irrigation more frequently than once every 7 d to remain photosynthetically active over prolonged periods. (A.K. Durhman, D. B. Rowe, and G.L. Rugh)

Excerpted from HortScience *41(7):1623-1628, December 2006.*

Turf groundcover affect establishment and growth of trees. Establishment and growth of eastern redbud and pecan were studied where soil surfaces were either covered with each of three common turfgrass species (tall fescue, Ky bluegrass, bermudagrass) or maintained free of vegetation by the use of herbicide or an organic mulch layer. The presence of turfgrass reduced overall tree growth. Nutrient concentrations in all treatments were within standard ranges, so the inhibition may be more complicated than resource competition. This research along with a growing body of evidence that indicates fescue has allelopathic properties that inhibits nearby plant growth, suggests that clearing turfgrass away from the root zone of newly planted trees can dramatically increase growth of those trees. With the current trend to select trufgrasses that are more competitive with greater weed suppressive properties, the necessity to maintain those grasses away from landscape trees will become increasingly important. (J.J. Griffin, W.R. Reid and D.J. Bremer)

Excerpted from HortScience *421(2):267-271, April 2007.*

Fertilization of red maple and little leaf linden does not aid tree establishment. Findings from this study indicate:
1. Current fertilizer rate recommendations do not speed establishment of B & B red maple and littleleaf linden in moderately poor soil conditions.
2. Fall applications of fertilizer are not more effective than spring applications for red maple and littleleaf linden in these conditions. No fertilization regime improved growth; however, differences may not be apparent.
3. There was no evidence that fertilizer treatments had negative effects on the growth of unirrigated littleaf lindens and red maples when compared with irrigated trees, even when rainfall was below average.

Research concerning fertilization at planting of B & B trees still has not provided definitive answers, and the arboriculture profession should expect recommendations to change as more information becomes available. Fertilizing B & B trees does not speed establishment under

average to moderately poor landscape conditions for littleleaf linden and red maple, whether irrigated or not, in the soil conditions described in this experiment. There may be situations in which fertilization at this time is beneficial, but these have not been fully defined. The results of this study do not provide evidence that fall transplanting is more effective than spring transplanting. This research did not suggest that fertilization at transplanting or fertilization of unirrigated trees during establishment will result in tree stress. (S.D. Day and J.R. Harris)

Excerpted from Arboriculture & Urban Forestry *33(2):113-121, March 2007.*

Using organic amendments to decrease bulk density and increase macroporosity in compacted soils. This investigation showed that the addition of organic amendment (at least 33% for sandy loam and 50% for clay loam) to a compacted soil reduced bulk density to below root restricting thresholds and increased macroporosity significantly—more than 100% in some cases. Sphagnum peat was marginally more effective at lowering bulk density and increasing macroporosity than food waste compost, probably because of the deleterious 'particle nesting' effects of the added sand in the food waste compost. This investigation showed that the bulk density and macroporosity of two disturbed soil types, sandy loam and clay loam, were positively affected through amendation with organic matter. Bulk density decreased below root-restricting thresholds and macroporosity increased significantly. Modification of the soils with food waste compost and peat could be expected to reduce root impedance and increase soil aeration and drainage. The addition of organic amendment to a compacted soil increases the potential for better root growth even after soil is recompacted A. Rivenshield and N.L. Bassuk)

Excerpted from Arboriculture & Urban Forestry *33(2):113-121, March 2007.*

Turf

Effect of spent mushroom substrate (SMS) on seed germination of cool-season turfgrasses. High rates of fresh SMS used for soil amendment represents a potential problem for turf seed germination under certain conditions. The risk for delayed on inhibited germination will be greatest when high amounts of SMS are blended with soil and used as topsoil. Or when high amounts of SMS are tilled into soils that already have a potential salinity problem. In such situations, SMS rates should be low, and perennial ryegrass should be used instead of salt sensitive species such as colonial bentgrass, sheep fescue, and Kentucky bluegrass. Because there is considerable variation in salinity levels of SMS from various mushroom farms, EC values should always be determined before using SMS for soil amendment of turfgrass areas. (T. Aamlid and P. Landschoot)

Excerpted from HortScience *Vol. 42(1):161-167, February 2007.*

Hybrid bluegrass, Ky bluegrass and tall fescue in the transition zone. All turfgrasses tested ('Dura Blue' and 'Thermal Blue' hybrid bluegrass selected fro heat and drought tolerance; 'Apollo' Kentucky bluegrass and 'Dynasty' and 'Kentucky 31' tall fescue) would make suitable turfgrasses for transition-zone lawns in Knoxville, Tenn. All varieties exhibited acceptable color and quality under high temperature stress in the summer. Homeowners may prefer 'Apollo', 'Dynasty' and 'Dura Blue' due to their dark, aesthetically pleasing color. Nitrogen fertilization for these varieties should be between 150 and 300 kg/ha/yr. 'Thermal Blue' had good color and quality, but excessive clipping production was problematic at higher N rates. 'Dynasty' and

'Kentucky 31' require less N and would be desirable in a reduced maintenance situation. However, both tall fescue varieties are susceptible to brown patch regardless of N rate. All of the bluegrasss varieties should only be used in high-maintenance situations, such as golf courses, sports fields, or high-maintenance home lawns in the transition zone. 'Apollo', 'Dura Blue' or 'Thermal Blue' or possibly blends of the three species would produce a high-quality turfgrass. (T.C. Teuton, J.C. Sorochan, C.L. Main, T.J. Samples, J.M. Parham and T.C. Mueller)

Excerpted from HortScience *42(2):369-372, April 2007.*

Tolerance of turf-type tall fescue established from seed to postemergence applications of mesotrione and quinclorac. These data indicate that mesotrione can be safely used for weed management during seeded establishment of turf-type tall fescue from seed with limited negative effects on turf stand grow-in. Cool, wet environmental conditions could potentially increase mesotrione injury to tall fescue. Three sequential mesotrione applications at 0.28 kg/ha was the most detrimental to tall fescue stand development, potentially delaying harvestability of tall fescue sod. Although quinclorac can be applied safely 28 DAE according to label recommendations, mesotrione could potentially be used earlier. (J.S. MCElroy and G.K. Breeden)

Excerpted from HortScience *42(2):382-385, April 2007.*

New Introductions

***Syringa pekinensis* 'SunDak' (Copper Curls®): A widely adapted tree lilac**. Pekin lilac is native to north China. It differs from the closely related Japanese tree lilac (*Syringa reticulata*) by its finer texture and variable colorful bark, which exfoliates horizontally in thin flakes or sheets. 'SunDak' is a new tree lilac cultivar selected for its attractive exfoliating orange to copper pigmented bark on the trunk and lateral branches. Leaves are entire and purplish new growth changes to green as leaves expand. Creamy white flowers, fragrant flowers are produced in long panicles (blooms last 15-20 days). Seed clusters remain on the tree adding winter interest. Fall leaf color is minimal in northern climates (N. Dakota) but pale yellow hues developed in North Carolina trials. "SunDak' is resistant to ash/lilac borer and powdering mildew; and is not susceptible to foliar feeding insects. It is tolerant to drought, heat, and low winter temperatures (adapted to zones 3b to 7b). 'SunDak' is nonsuckering and is not invasive or messy. Its medium stature as a small tree makes it an appropriate choice under power lines. This cultivar is available for non-exclusive licensing. For more information, contact Dale Zetocha, Executive Director, NDSU Research Foundation (dale.zetocha@ndsu.edu). There is a horticultural royalty of $0.85/per plant through the NDSU Research Foundation. Trees are available from Bailey Nurseries, Inc. Several other nurseries have been licensed and are beginning production. (S.Redlin, D. Herman and L. Chaput)

Excerpted from HortScience *Vol. 42(1):170-171, February 2007.*

Pink-fruited blueberry selections. G-435 and ARS 96-138 are pink-fruited blueberry selections developed by the Agricultural Research Service of the U.S. Department of Agriculture. They are being released as germplasm for further evaluation, breeding, and possible commercialization. Limited evaluations of pink-colored blueberry fruit have been made and the fruit have generally been found to be relatively low in acid, sometimes to

the point of being bland, but are often delicately and pleasantly flavored. The general characteristics of G-435 are early- to mid-season ripening, moderate to good yields, medium-sized fruit, dark pink fruit color, good scar, and good firmness. Summer foliage is depp green, turning to bright red in the fall. Winter twigs are burgundy in color. G-435 is recommended primarily for areas where northern highbush are typically grown, but the southern germplasm in its ancestry suggests it may also be adapted to more southerly areas.

The general characteristics of ARS 96-138 are mid-late- to late-season ripening, moderate yields, medium-sized glossy fruit, bright pink fruit color, mild pleasant flavor, and good firmness. Leaves are glossy, green with serrate margins. Winter twigs are dusky, reddish brown. These plants are hardy in New Jersey, but fruit production is irregular, producing reduced or no crops in years with late spring frosts, and moderate crops in years with mild spring temperatures. Commercial growers may request information on how to obtain propagules by contacting M.K. Ehlenfeldt, USDA-ARS, Marucci Center for Blueberry & Cranberry Researc and Extension, 125A Lake Oswego Road,Shatsworth, NJ 08019. (M. Ehlenfeldt and C. Finn)

Excerpted from HortScience *Vol. 42(1):172-173, February 2007.*

'Dream Catcher' and 'First Lady' flowering cherry. This report documents the first two flowering cherry selections, *Prunus* 'Dream Catcher' and 'First Lady' released from the flowering cherry breeding program at the U.S. National Arboretum. Prunus 'Dream Catcher' is a deciduous, upright, vase-shaped flowering cherry. Bark is grey on the surface with undertones of dark brown. Flowers are medium pink, single and borne in umbels of 2-4 on racemes. *Prunus* 'First Lady' was selected for its strongly upright, almost columnar growth habit. Flowers are single, semipendulous, borne in umbels of 2-5 on racemes and dark pink with reddish calyx and filaments. 'Dream Catcher' and 'First Lady' are not patented, so they may be propagated and sold freely. Plants are available from a limited number of wholesale and retail nurseries (source list available on request; Margaret.pooler@ars.usda.gov). The National Arboretum does not have stock of these plants available for general distribution, but can supply budwood or unrooted cuttings to nurseries wishing to propagate these plants. (M.R. Pooler)

Excerpted from HortScience *Vol. 42(1):174-175, February 2007.*

Marketing

Connecticut nursery and landscape industry preferences for solutions to the sale and use of invasive plants. Survey data from 114 members (42% response rate) of the Connecticut Nursery and Landscape Association were analyzed to evaluate preferences for different potential solutions to reduce the annual sale of billions of dollars of invasive ornamental plants. The majority of respondents accurately identified key invasive plant characteristics, considered themselves to be knowledgeable about invasive plans, and cited trade journals and professional organizations as their sources of invasive plant information Although industry members generally considered Norway maple (Acer *platanoides*), Japanese barberry (*Berberis thunbergii*) and winged euonymus (*Euonymus alatus*) to be invasive, only 14.5% and 8.1% respectively, considered the emerging invasive species Japanese silver grass (*Miscanthus sinensis*) and butterfly bush (*Buddleja davidii*) to be invasive. In comparing different approaches to reducing the sale of invasive ornamental plants, strong support was expressed

for marketing noninvasive alternative plants (mean rank of 2.5) and for development of genetically altered sterile forms of invasive ornamentals (mean rank of 2.9; on a scale from 1=most favorable to 6=least favorable). Respondents strongly disfavored taxation as a method of reducing invasive plant sales (mean rank of 5.0) even if proceeds were directed toward invasive plant control and research. Plant bans (mean rank of 4.1) were also an unpopular choice for economically important crops, and respondents desired provisions for cultivars with reduced invasive risk to be included in plant bans. To foster maximum green industry participation in invasive plant control efforts, future directions should focus on creation of sterile forms of popular landscape plants, identification of consumer preference for noninvasive alternatives, and development of strong consumer education programs. (J.A. Gagliardi and M.H. Brand)

Excerpted from HortTechnology *17(1):39-45, January-March.*

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 the internationally renowned 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 will begin in mid-April 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).

* The Northeastern IPM Center is funded through the USDA's Cooperative Research, Extension, and Education Service (CSREES). The Green-Blue Summit is organized by the Center's Community IPM Working Group.

Ethofumesate: Modification and Closure of Reregistration Eligibility Decision. This notice announces EPA's intention to modify certain risk mitigation measures that were imposed as a result of the 2005 Reregistration Eligibility Decision (RED) for the pesticide ethofumesate. EPA conducted this reassessment of the ethofumesate RED in response to new dermal absorption data submitted by the technical registrant, Bayer CropScience, Inc. These data allowed the Agency to modify its original assumption of 100% dermal absorption to 27% and thus modify the ethofumesate label requirements including: removing the 9-day re-entry interval for maintenance activity and adjusting the existing harvest prohibition for sod from 16 days to 3 days.

Triadimefon: Requests to Voluntarily Cancel or to Amend to Terminate Uses of Triadimefon Pesticide Registrations. In accordance with section 6(f)(1) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, EPA is issuing a notice of receipt of requests by registrants to voluntarily cancel and amend their registrations to terminate uses of certain products containing the pesticide triadimefon. The requests would terminate triadimefon use in or on apples, pears, grapes, raspberries, and residential turf. The requests would not terminate the last triadimefon product registered for use in the United States. EPA intends to grant these requests at the close of the comment period for this announcement unless the Agency receives substantive comments within the comment period that would merit its further review of the requests, or unless the registrants withdraw their requests within this period. Upon acceptance of this request, any sale, distribution, or use of products listed in this notice will be permitted only if such sale, distribution, or use is consistent with the terms as described in the final order.

Nutrient Management

Amendments to the nutrient management regulations:

6.0 Nutrient Handling Requirements
6.1 As required by 3 Del. C §2201 et.al, Nitrogen and Phosphorus fertilizers shall be applied according to a Nutrient Management plan.
6.2 For land areas not required to have a Nutrient Management plan, applications of Nitrogen and Phosphorus fertilizers by anyone holding a commercial nutrient handler or nutrient consultant certification, or required to be certified, at said level pursuant to 3 Del.C.2242 and section 4.0 herein, are prohibited when one of the following conditions exist:

6.2.1 The surface area of application is impervious such as sidewalks, roads and other paved areas and the misdirected fertilizer is not removed on the same day of application;

6.2.2 The surface area is covered by snow or frozen; or

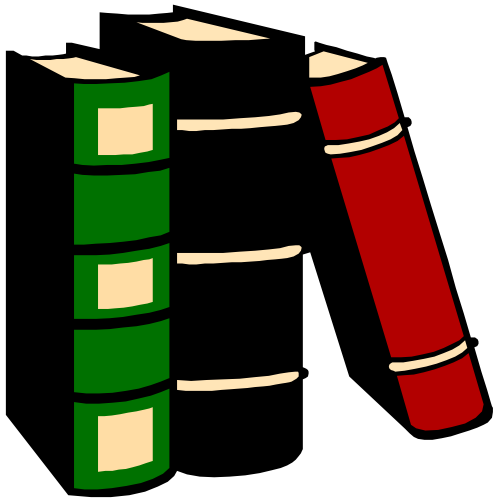
6.2.3 The date of application is between December 7 and February 15.

Definitions:
"Fertilizer" means any synthetic or carbon based substance that is added to the soil to supply one or more plant nutrients.
"Frozen" relates to frozen ground and is the top 2-inches of surface area receiving nutrients where the moisture has changed to ice for a period of 72 consecutive hours or a condition where any ice formation below the 2-inch zone restricts the natural flow of moisture through the soil profile.

Publications

Weeds of Container Nurseries in the United States are available from the North Carolina Association of Nurseryman, Inc. This 16-page publication can be ordered by calling: (919)816-9119. Cost depends on the number ordered. For more information use the following website: www.ppws.vt.edu/ipm/weeds_container_nurseries.html

Cost Estimating and Job Bidding Software. The Departments of Horticulture and Agricultural and Applied Economics at The University of Georgia has released a new software program designed to help landscape professionals estimate costs and bid successfully on landscape installation jobs. The menu-driven, user friendly program contains worksheets for estimating overhead, equipment, labor and travel costs. The estimator component assists the user in calculating direct job costs, bid price on a job, break-even price, profit, and overhead recovery. The costs are then transferred into a contract for presenting to the client. Hort Scape is for sale through the Agriculture Business Office at the University of Georgia, http://www.hort.uga.edu/extension/pograms/hortmanage.html



Calendar

April 28 – UDBG Plant Sale and College of Agriculture and Natural Resources Ag Day, 9 AM – 4 PM, Newark, DE.

April 28 – 27th Annual Rare Plant Auction. Cocktails and dinner, silent and live auctions and admittance to Longwood Gardens. Longwood Gardens, Kennett Square, PA. Reservations are required by calling Delaware Center for Horticulture (302)658-6262, ext. 100 or by registering on-line at www.rareplantauction.org.

May 17–19 – American Boxwood Society Annual Meeting, Alexandria, VA; www.boxwoodsociety.org

June 7-9 – Native Plants in the Landscape at Millersville. Conference and Plant Sale, Millersville, PA. Contaact 717-872-3030 or www.millersvillenativeplants.org.

June 20–24 – Planet Summer Leadership Meeting, Sheraton on the Falls Hotel, Niagara Falls, Ontario, Canada, Contact: 1-800-395-2522. www.landearenetwork.org

June 20–23 – Southeast Greenhouse Conference, at the Palmetto Expo Center, Greenville, SC. Call 1-800-453-3070 for more information. www.sgcts.org smolnar@asginfo.net

June 26-30 – Mark your Calendar NOW! 2007 APGA Annual Conference, Defining Your Garden's Culture will be held in Washington, D.C. The conference is being hosted by the Smithsonian Institution and the U.S. Botanic Garden. The program will focus on the institutional culture of public gardens, whether and how it supports staff, serves visitors and community, enhances horticultural practices and how those at public gardens can learn to measure institutional culture. For more information visit www.publicgardens.org.

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 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.

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. Phone (770)-953-3311, www.sna.org

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.

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.