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

Spring has sprung, and the busy season has begun! Our organization has been busy as well. The Delaware Horticulture Industry Expo proved to be an overwhelming success at the Modern Maturity Center. The January 12th and 13th event featured interesting speakers, a CNP prep course, and the trade-show. Our 1999 Landscape Award winners were also honored at the DHIE. Based on exhibitor and attendee feedback, the Modern Maturity Center will host our 2001 event as well.

As announced at the DHIE, the members of the Delaware Association of Nurserymen voted overwhelming in favor of changing the name of our organization to the Delaware Nursery & Landscape Association. I have been working to implement the name change throughout the winter. We now have the green light—so it's a go! So please take note of this change in your records. We also have a new email address: dnlainc@earthlink.net

Mark your calendars! The annual Summer Expo and Golf Tournament will be held on Thursday, August 17th at Garrisons Lake Golf Club. More information will follow. If you would like to be on the planning committee for this event, please call me.

Congratulations to our 1999 Landscape Award Winners.....

Chris Valenti of J.B. Landscaping (USA), L.L.C., Lewes, DE - >\$10,000 category

John Wiest of John T. Wiest Landscaping Service, Seaford, DE - <\$10,000 category

On March 21st seven individuals sat for the Certified Nursery Professional exam. Congratulations are in order for the following individuals:

New CNPs

Jon Workman
Atlantic Landscape Co.
Landscape Specialist
Turfgrass Management Specialist

Jason Falkenstine
Moon Nurseries of Maryland
Nursery Production Specialist
Landscape Specialist

Kathy Palmer
Old Country Gardens
Landscape Specialist
Garden Center Specialist

Chris Keulmann
Old Country Gardens
Garden Center Specialist

Welcome to our newest member:

Atlantic Landscape Co.
2100 Rodman Road
Wilmington, DE 19805
(302) 661-1950

FROM THE PRESIDENT
Steve Sterling
Delaware Nursery and Landscape
Association

As the new President of the newly named Delaware Nursery & Landscape Association, I would like to introduce myself. I am a partner in my family's business, The Sterling Nursery in Smyrna, DE. We are a wholesale nursery and grow bare root liners. With the help of former employers, Joe and Fred Wick, my parents started the business nearly 25 years ago. With the exception of unpredictable weather such as last year's drought and snow on April 9, 2000, I can't think of a better business to be in.

Our Board is already underway planning this year's events and projects and it won't be long before the 2000 Plant of the Year is announced. Committees are working hard preparing for the Summer Expo and the DHIE and meetings have already begun. If you have any questions or comments regarding these events, please do not hesitate to contact Valann or me.

As the Board continues to be involved in Legislation pertaining to drought issues, our Past President, Naomi McCafferty has spent countless hours attending various meeting with the Green Industry Task Force. As you may already know, the Board has decided to resign from the task force to better concentrate our efforts to The Water Supply Coordinating Council. In addition to PGMS and Brandywine Valley Golf Course Superintendent's Association, we were named to the Governor's Council and will continue to work together to present our issues to the council.

Thanks to Naomi McCafferty, Steve Castaroni and Dave Farrar for the time and effort they've spent on task force and drought meetings. They have unselfishly given time from businesses and families for a cause to benefit us all.

On behalf of the Board, I would like to congratulate Jill and Craig Rice on the birth of their son, Craig Jr., born on February 11. Happy Spring!

WATER ISSUES UPDATE
Charles Jenner, President
PGMS First State Branch

On Friday, March 3rd, representatives of the Delaware State Golf Association, D.A.N. and PGMS attended the first meeting of the newly formed Water Supply Coordinating Council. This meeting and future activities of this council will allow us to maintain our involvement in water issues at the state level.

Following the Coordinating Council meeting, a larger group of Green Industry Task Force Representatives met with active members of the Governor's Drought Advisory Committee (DAC). In this meeting we discussed minor revisions to our Green Industry Document. On Monday, March 13th, we met informally with tow of the DAC representatives to review their comments on our revisions. This sequence of documents and revisions and meetings and discussions and reviews and comments seems endless. However this effort is by no means pointless. We have had two serious droughts in the last five years, and have been placed under restrictions harsher than those for other industries, and more burdensome than those imposed in the past. Future droughts and restrictions are inevitable. If we do not work for fairer regulations, future restrictions will be at least as oppressive as those of 1995 and 1999.

PGMS is sponsoring a petition asking for the use of the Green Industry Document as the reference document for the drafting of Executive Orders imposing either voluntary or mandatory water use restrictions in the event of a drought warning or emergency. For more info., contact PGMS, P.O> Box JF96, Winterthur, DE 19735.

U of D NEWS
Susan Barton
Extension Specialist

I hope everyone has had a chance to see the April 1 issue of *American Nurseryman*. It includes a full-page ad (page 51) and feature article (page 98) on Trees Add Life, the point of purchase tree planting information campaign I have been working on for two years. A number of garden centers in Delaware served as pilot sites for this project. We have finally gone national (as you can read in the article). Sunrise Marketing has taken over the administration of the program. For \$75, you can purchase a Trees Add Life marketing package, which includes newsletter articles, posting to the treesaddlife website, 25 sample Trees Add Life tree tags, one 30 x 50 inch 4-color banner, assorted promotional templates and logos and ad slicks. How can you go wrong? I hope everyone who has a garden center will support this new promotional campaign. We would all like to sell more trees, right? Over 75% of the customers we surveyed felt the Trees Add Life information was helpful, gave them confidence, increased their knowledge and encouraged planting. By displaying banners and tree tags, using logos and including Trees Add Life articles in your newsletters you will help make this slogan as recognizable as Fall is for Planting. Contact Sunrise Marketing at 888-393-4443 or sunrisemarketing.com. The Trees Add Life website is located at treesaddlife.org.

I was the pleased recipient of a DNLA grant this winter to create a brochure entitled "Dealing With Drought in the Landscape." I hope they are wrong, but experts are predicting another drought for the summer of 2000. If you deal with the general public (or elected officials!), I hope you will use this brochure to explain the benefits of plants (and the costs associated with replaced plants that die during a drought), how plants use water, water requirements for newly

planted and established plants, methods of efficient watering, ways to design landscapes to reduce water needs and a suggested list of drought tolerant species. Dr. Wallace Pill and myself wrote the brochure early this spring. It is now in the hands of Ag Communications for editing and graphic design. We hope to have brochures available by June (which is about when you'll need them if we have a dry summer). Thanks for your support and I hope you find the brochure useful.

Delaware Cooperative Extension is also sponsoring a bus tour in June. This exciting tour is designed to keep extension and industry professionals abreast of two significant new trends in the nursery and landscape industry. The tour will focus on the production and landscape use of native plants and on the distribution of plants through the internet and mail order.

Extension professionals, garden center operators, landscape designers and contractors, nursery professionals and anyone who is interested in the nursery and landscape industry should attend this tour.

We will visit two production nurseries that feature native and wetland plants –

North Creek Nurseries is located in Landenberg, PA. Their mission is to propagate and market plants that develop the relationship between people and sustainable outdoor environments. Their vision is to be a leader in the development and practice of sustainable horticultural systems, producing world-class plant material. You will thoroughly enjoy both the trial gardens and production facilities of North Creek Nurseries-- where horticulture meets ecology.

Pinelands Nursery is located in Columbus, NJ. Pinelands grows native plants with a focus on wetland plants and wetland restoration. Owner,

Don Knesick has significant experience and expertise in wetland restoration from a production and installation perspective. Pinelands promises to host our tour in elaborate New Jersey style.

But landscape design with native plants is more than knowing and growing individual plant species. Noted author and landscape consultant, Rick Darke will lead an exploration of the New Jersey Pine Barrens, so you can learn about plant combinations and adaptations in the natural environment. Rick Darke is a widely published author, photographer, lecturer, and landscape design consultant specializing in native plants and regional landscapes of North America. Darke lectures nationally on various topics related to horticulture and landscape architecture. His special areas of expertise include native plants, ornamental grasses and regional landscapes of North America. As Darke explains, the Pine Barrens offer an excellent opportunity to study native plants in both wet and dry habitats.

We will spend the night in Ship Bottom, NJ, where you can enjoy the nightlife of the beach. On Wednesday, we will visit two nurseries that illustrate another significant trend in our industry—internet sales and mail order.

Fairweather Gardens is a small mail order firm that stays on the cutting edge of the industry. They are located in Greenwich, NJ and operate from a small facility. But they sell lots of hot, new species and cultivars.

Peninsula Nurseries in Selbyville, DE (recently purchased by the W. Atlee Burpee Co) is also a leader in supplying the mail order industry. Director of Product Development at Burpee, Dave Devine will lead us in a tour of the nursery as well as share his insights on the direction of the industry including his perspective on the use of the internet for landscape plant sales.

We think you will find these two days packed with great experiences, new insights, real information you can use in your business and lots of fun

We continue to offer short courses as part of the Ornamental Horticulture Programs, 2000. Here are the classes offered during the rest of this season:

Pest Management Track

Pest Walk* June 7, 9 AM to 12 PM
Location: Mt. Cuba
Instructors: Bob Mulrooney, Dewey Caron
Cost: \$10

Pest Walk* September 7, 9 AM to 12 PM
Location: Research & Education Center
Instructors: Bob Mulrooney, Dewey Caron
Cost: \$10

Weed Identification and Control*

September 11 and 13, 3-6 PM
Location: New Castle County Extension Office
Instructor: Gordon Johnson
Cost: \$10

Landscape & Turf Track:

Turf Diagnostic Clinic*

July 11, 8:30 AM - 12 PM
Location: New Castle County Extension Office
Coordinator: Bob Mulrooney
Cost: \$25

Perennials for the Shade

July 11, 18 and 20 3-5 PM
Location: U of D Botanic Gardens
Instructor: John Frett
Cost: \$25

***Pesticide credits will be awarded for attendance at these courses.**

COMMUNITY STRUCTURE IMPROVES BIOLOGICAL CONTROL

Dewey M. Caron

Extension Entomologist, U of D

Paula Shrewsbury, Ornamental Insect specialist at the University of Maryland, recently presented her research findings at the Eastern Branch, Entomological Society of America meetings in Springfield, MA as part of a symposium on IPM. Her study examined azalea, the most common shrub in our urban landscape. In the landscape, azaleas located in open areas frequently suffer azalea lace bug (ALB) outbreaks while those in sheltered sites have fewer outbreaks. Structural complexity of the landscape was found to be the best indicator of outbreak potential--plants in more complex environments (those with more trees, shrubs, flowers, and groundcovers) had fewer and less severe outbreaks. Complex landscapes had greater numbers of natural enemies (especially spiders), which was related to greater numbers of alternate prey, and were cooler than simple landscapes. Azalea located in simple sites provided a thermal refuge--the pest ALB develop faster, have a higher survival rate and more reach reproductive age. Therefore, ALB populations could establish in simple landscapes and reach outbreak levels but not in complex ones.

While at Rutgers, Paula and other Rutgers researchers, established a field experiment of small plots to test if adding flowers (shasta daisy and coriander were used in the study) to landscapes would result in more predators staying around azaleas with subsequent reduction of ALB populations. In addition, green lacewings (GLW) were released in plots of azaleas alone or in plots of azaleas with flowers. As hypothesized, the plots with flowers resulted in greater numbers of alternate prey and predators and healthier azalea plants with fewer ALB. Unexpectedly the GLW

predator was not recovered after release in either plot type.

In a comparison test in a New Jersey nursery, potted azalea with high levels of ALB were treated with an insect killing fungus (*Beauveria bassiana*) augmentative release of green lacewings (GLW), and an insecticide (Orthene) treatment (a control was untreated). The fungus treatment reduced ALB by 50%. Control levels of GLW at the rate of 1:8 (one GLW to 8 ALB) and 1:16 were not statistically different than the Orthene treatment, all providing thorough control (greater than 85%). GLW were again not recovered after release.

Green lacewings are highly predacious (the larval stage was used in these studies not the adult stage). Perhaps they ate each other or they left the plants in these two studies after first feasting on the ALB. Economics still need to be worked out and further studies are needed to define parameters. It might be environmentally feasible to replace our standard treatment (Orthene) with augmentative release of a biological control agent such as GLW in certain nursery or landscape situations.

Studies lead to the conclusion that simple habitats, where there are fewer alternate food sources (prey, nectar and pollen) to retain predators, allow azalea lace bug populations to prosper due to their reduced predator pressure. Such communities may benefit by increasing the structural complexity of the habitat by incorporating plants (such as flowers, trees, and shrubs) into the habitat. In situations where increasing structural complexity is unlikely, then augmentative release of natural enemies, like the green lacewing, may help in suppressing pest populations.

A PLANNED PERFORMANCE

Sarah McCollum

In today's job market, prospective employees look for more than just a job to get them by financially – they seek satisfaction. People ask, “What is the approach this organization will use to help me continue to grow professionally?” Perrone says, “People are concerned about their quality of life inside that organization.”

Bearing this in mind, the wise employer creates an environment in which workers can grow professionally. An interesting facet of the green industry, Perrone says is that landscapers – both interior and exterior – have traditionally been open-minded about new ways to improve their businesses. “From a development perspective, one strength [the green industry has] is that we always have had people fighting off this information.”

However, plantscapers and landscapers can be challenged when it comes to implementing these new ideas on business leadership. Historically, people in the industry are hands-on. They sometimes can be so hands-on and so caught up with the day-to-day duties addressing plants and client requests that they don't take a step back to concentrate on the structural aspects any business requires to be wholly successful, Perrone explains.

If managers don't pull back to get perspective, they can find themselves in myriad difficulties. For example, without consulting employees to find out what their professional goals are, supervisors might promote workers into positions they find undesirable. This inattention puts the company at risk of losing a valuable worker.

On the other hand, simple encouragement can do wonders. Helping workers set goals, offering help when needed and evaluating employees on

job performance are just some of the things employers can do to boost job satisfaction. And, says Perrone, content employees can help employers get a leg up on their competition. “If you create an internal environment that gets people excited, it'll get into them, and they'll relay that to the clients,” he explains.

Develop a Plan. Developing a performance plan is not a simple task, but Perrone says there's no reason to be daunted by it. When beginning, remember that an effective program takes into consideration the overall goals of the company as well as those of the individual employee. “It's a kind of partnership,” Perrone explains.

There are several steps to creating a performance management program. During their symposia, Perrone and DeJovine walk attendees through expectation setting, performance planning, coaching and mentoring, and the evaluation process. But Perrone says the best way to understand the entire process is to actually formulate a program. “We give a structured approach on how to do it,” he says.

Perrone and DeJovine suggest attendees take a two-prong approach in their performance programs, reminding them to consider both company and employee goals. This produces competent, not to mention committed, workers.

The next step Perrone and DeJovine take in their symposia is to ask participants to examine each position in their organization and to delineate outcome-oriented goals for them. Attendees then examine individual employees in the positions and work to create professional development goals for them. (Outside the symposium, this last step would be done with employees themselves.)

After the performance plan outlines are created, attendees “workshop” them. This enables

owners and managers to practice implementing their plans. The exercise also includes problem-solving drills. “We want to give people the tools to take back and do these things,” Perrone says, “We want people to walk away with a plan of action.”

Of course, one of the most important aspects of developing an entire plan is inevitably missing from the symposia, he says – employees. Without them, owners and managers can’t engineer a “total” plan.

The bottom line is that good workers don’t grow on trees. It’s up to each company to develop a performance program that not only evaluates workers fairly but encourages and enables them to grow professionally. This takes a lot of work, but your employees’ enthusiasm for their job will shine through and reflects positively on your company – and may even give you a competitive edge.

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QUEST FOR SUPERIOR NATIVE VIBURNUMS

Dr. Susan J. Wiegrefe, Tree Breeder
The Morton Arboretum

The Group

Nannyberry *Viburnum* and related species in the botanical section *Lentago* share a number of traits that make them valuable shrubs or small trees for the landscape. They all bear the characteristic paired, unlobed, toothed leaves and flat-topped masses of small, 5-petaled whitish flowers in mid to late spring. In all cases, the leaves turn attractive colors before dropping in the fall. The flowers develop into spherical or ellipsoid fruit (known as drupes), each containing a single, large flattened seed surrounded by more or less edible pulp. The fruits of these eastern North American natives are attractive to the eye as well as to the palates of numerous bird species.

The Individual Species

Each species inhabits a somewhat different ecological niche and possesses a unique cluster of aesthetic, as well as adaptive, strengths. The Nannyberry *Viburnum* (*Viburnum lentago* L.) is the most cold-hardy member of the group. It grows naturally from southern New Brunswick to southern Saskatchewan and south to northern Missouri and Virginia (Little 1977). In the Midwest, Curtis (1959) found it most abundantly in dry mesic woodlands, yet Swink and Wilhelm (1994) determined that it occurs almost equally in wetland and upland habitats, illustrating the diversity of soil conditions the species will tolerate. It also tolerates partially shaded as well as sunny locations. It grows as a large shrub or small tree often to a height of 15 to 20 feet, though it may reach 30 feet. It has an arching habit and individuals vary in the extent to which they produce suckers. The greatest weakness of this species is its susceptibility to mildew.

The natural range of Black Haw Viburnum (*V. prunifolium* L.) is more southerly than that of Nannyberry Viburnum. Its range occupies the middle latitudes of the eastern United States from eastern Nebraska and northern Illinois to southern Connecticut and southwards to central Georgia and Alabama (Little 1977). It thrives under a wide range of soil moisture conditions and pH levels as is evidenced by its occurrence on both quartzite bluffs and calcareous fens in Illinois. It occurs both as isolated individuals and in clonal thickets formed by extensive suckering. It persists in shaded sites, but requires exposure to sun in order to produce flowers and fruits in any quantity. The species' ornamental strengths are its showy clusters of cream-colored flowers, horizontal branching habit, and leaf presentation that is less "droopy" than that of the Nannyberry Viburnum.

The Southern or Rusty Black Haw (*V. rufidulum* Raf.) inhabits an even more southerly distribution, with its northern limits in central Missouri, the Ohio River valley, and southern Virginia. Its range extends westward into central Texas and south to the Gulf of Mexico (Little 1977). This species tends to be more arborescent than the previous two and can reach heights of 30 feet, although 15 to 20 feet is more common. Its leaves, though variable (Stephens 1973), are often quite thick, glossy, and covered with a rusty pubescence (especially when young) – a suite of traits that aid in the conservation of moisture and enable it to withstand summer heat and droughty soils.

The With-rod Viburnum or Wild Raisin (*V. cassinoides* L.) has an extensive natural range from Newfoundland to Manitoba and south to Indiana and Maryland and in the mountains to Alabama and Florida (Gleason and Cronquist 1963). It is a facultative wetland species (Swink and Wilhelm 1994) that occurs most often in wet woods and swamps. This shrub grows to 15 feet in height, but is shorter and more compact

when grown in full sun (Dirr 1990). It is prized for its fall color and fruit display, both of which go through a variety of attractive colors before being dropped or eaten. The species' attributes have not been fully investigated from a horticultural standpoint, but it may be generally intolerant of drought and alkaline soils.

Although the Possumhaw Viburnum or Smooth With-rod (*V. nudum* L.) is not a Midwestern native, it may prove to have traits we desire to bring into the genetic mix. It grows naturally in states bordering the Atlantic Ocean and Gulf of Mexico from Connecticut to Texas, with a few inland populations in Arkansas, Tennessee, and Kentucky. It is considered by some taxonomists to be included in the preceding species (*V. cassinoides*) and it inhabits a similar habitat – swamps, specifically those of the coastal plain. It is prized for its sometimes-exceptional fall color and its shiny leaves.

The extensive ranges of the various species and their occupation of some extreme habitats indicate that there is a high probability of success in selecting individuals with exceptional tolerance to challenging soils and climate, and diseases, and with desirable ornamental traits. Studies of Egolf (1956) indicate that it may be possible to combine desirable traits of these species through interspecific hybridization.

Collection and Germination

I obtained partial funding for the project from the Landscape Plant Development Center and have initiated seed collection from a number of populations from the edges and interiors of each Midwestern species' range. My assistants and I conducted several scouting and seed collection trips during the 1997 and 1998 growing seasons. The trips took us as far a field as southern Minnesota, Lake of the Ozarks (Missouri), north central Michigan, and Cumberland Gap (Kentucky) and resulted in the collection of 52 accessions of native viburnums.

The location of fruiting native populations and timely collection of seeds were only the beginning phases of the project. Viburnums in this taxonomic group are notorious for their complex seed dormancy behavior. The dormancy is usually overcome by subjecting the seeds to multiple cycles of warm and cold stratification, first releasing dormancy in the root and then in the shoot axis (Gill and Pogge 1974). The difficulty lies in determining the appropriate duration of each period, a factor that can change with species and latitude. In spite of our novice status as propagators we successfully germinated 26 of the 28 seedlots collected in 1997. The stratification treatments are not complete for the seeds from the 1998 collecting trips at the time of this publication.

Looking forward

I have entered into an agreement with Hinsdale Nursery in Youkville, IL to grow a portion of some of our larger seedlots. The soil at their growing facility contains less clay and has a lower pH than the soil at The Morton Arboretum. By splitting the seedlots we hope to determine more readily whether differences we detect in the seedlots will be stable across growing environments.

The seedlings may take as many as eight years to flower for the first time. Meanwhile, we will be evaluating them for disease resistance, foliage quality, timing and intensity of fall color, growth habit, cold hardiness, and timing of dormancy transitions. Discussions with landscape architects have taught us that both suckering and non-suckering types are considered desirable for specific purposes provided the growth habit is predictable.

While waiting for the wild collected viburnums to reach reproductive maturity I will also be conducting some controlled crosses on mature, cultivated plants to begin to understand the inheritance patterns of some of the traits of

interest. When the wild viburnums have been evaluated for floral and fruit characters the selection and breeding will begin in earnest.

Acknowledgements: Thanks to Lisa Berg and Jim Humbert (Morton Arboretum), Tim Weckman (Eastern Kentucky University), and Mark Coggeshall (Bernheim Arboretum).

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Reprinted from *Landscape Plant Development Newsletter*.

SAFE & RESPONSIBLE PESTICIDE USE

Communicating Positive Pest Management Messages

“Are Pesticides used safely and responsibly?
“My neighbor down the street used pesticides more than I do.”
“Are pesticides thoroughly tested?”

These perceptions reflect the attitudes of the general public toward specialty pesticides. A public opinion survey, conducted by RISE (Responsible Industry for a Sound Environment) in 1994, showed that even though consumers understand the benefits of pesticides, they are concerned about their safe and responsible use.

Perhaps your customers have similar questions and concerns. If so, how do you answer them?

What Do Your Customers Think?

Do you know what your customers’ opinions are regarding pesticides? Do you communicate your company’s safe and responsible use of pesticides?

It is important for you and the pesticide applicators with your company to serve as knowledgeable and credible sources for your customers about pesticides and how they are applied.

It’s easy to promote your company’s safe and responsible use of pesticides. It’s something you practice daily with each job. We encourage you to add another step to serving your customers: explaining the positive aspects of pesticide use and how your company uses pesticides.

Communicate With Your Customers

It’s important to proactively communicate with your customers. Providing materials such as fact sheets, newsletters, and information included with your billing statements will help

educate your clients. Include information such as:

1. Your responsible use of pesticides.
2. Pesticides your company uses.
3. The pests they control.
4. The benefits of controlling the particular pest.
5. Your Integrated Pest Management (IPM) philosophy.

Proactive Communication Points about Pesticides

Here are a few positive points you should discuss about pesticides with your customers:

1. *Environmental Protection Agency (EPA) regulations and the registration process.* The pesticide industry is one of the most highly regulated in the nation. After thorough review, EPA registers only those uses of pesticide products that pose minimal risks.
2. *Pesticide testing.* Many people are unaware of the rigorous testing that pesticides must withstand.
 - It takes a chemical manufacturer seven to 10 years to test and register a product.
 - Over 120 tests are performed, many to evaluate environmental and health impact.
 - Only one pesticide in 20,000 makes it from the lab to the market.
 - A product costs between \$30 and \$50 million to register.
3. *IPM.* Pesticides are used in Integrated Pest Management (IPM) programs. IPM is a system of controlling pests (weeds, diseases, insects or others) in which pests are identified, action thresholds are considered, all possible control options

are evaluated and selected control(s) are implemented. This program stresses the prevention of pest problems and the safe and responsible use of pesticides when necessary.

4. *Pesticides enhance the quality of life and the environment.* Discuss your customer's quality of life if there were no pesticides to treat the bothersome pests and weeds that invade homes, lawns and public areas, and can often transmit diseases and allergens.

Proactive Communication Points about Your Company

Your company takes many steps to ensure pesticides are used safely and responsibly. Don't forget to communicate these steps to your customers.

1. *Read and follow the label.* Let your customers know you closely follow label instructions. The label is the law as registered by EPA.
2. *Extensive training.* The applicators who work for your company are by law required to undergo certification, training and licensing, as well as keep strict records. Be sure to tell your customers of these requirements.
3. *Professional products.* Products used by professional applicators are often the same products used by homeowners, and are applied at the same rate, according to product labels.
4. *Proper calibration of equipment.* Good practice requires your company to properly calibrate equipment to ensure you're applying the exact amount of product called for on a label.
5. *Practice proper container disposal.* Explain what happens to the containers of the pesticides you apply to your customers' lawns or homes.
6. *How does your company incorporate*

IPM into its practices? This is another important point to share with your customers.

7. *State laws.* Your company should stay aware of the laws in your state and abide by them.
8. *Federal and state issues.* By attending events in your area such as state applicator legislative days, your company will stay informed on pesticide issues in your state. Also, your company will stay abreast of national issues that trickle down to the local level.

Helpful Resources

RISE cooperates with your national associations and can serve as an additional source of information by providing facts regarding issues facing the pesticide industry.

Two examples of broad-based issues facing the specialty pesticide industry include: "Idiopathic Environmental Intolerances" (IEI, formerly known as "Multiple Chemical Sensitivity" (MCS), and Integrated Pest Management (IPM) in schools).

From position statements on IEI to a definition sheet on IPM, RISE can help you become a knowledgeable and credible source to your customers and to the public.

RISE was created in 1990 as a voice for the specialty pesticide industry. Its embers include manufacturers, formulators, distributors and other industry leaders. We urge you to join, or continue your membership in, your state and national association(s). We are all working together to support your business.

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NURSERY CROP INSURANCE
Jim Sargent
Penn State Extension

Nursery crop insurance is available in all counties in all states, provided certain criteria are met. Insurance coverage will apply to all your nursery plants in the country that:

- are shown on the Eligible Plant List
- meet all the requirements for insurability
- are grown in an appropriate medium using acceptable production practices

Stock plants or plants grown for sale as Christmas trees are not insurable. An inspection of your nursery will be performed before insurance coverage begins.

Causes of Loss

- Adverse Weather Conditions (including wind, hurricane, and freeze*)
- Fire (provided weeds and undergrowth are chemically or mechanically controlled)
- Failure of the irrigation Water Supply (if due to an insurable cause of loss)
- Delay in marketability of plants resulting in reduced plant value (if due to an insurable cause)
- Wildlife

*If cold protection is required by the Eligible Plant List, adequate and operational cold protection measures must be in place.

Plant damage or losses in value as a result of the following situations are **not** covered:

- Disease or insect infestation (unless effective control measures for the infestation do not exist)
- Inadequate power supply
- Inability to market your nursery products due to quarantine, boycott, or buyer refusal

- Collapse or failure of buildings/structures (unless caused by an insurable cause of loss)
- Failure of plants to grow to an expected size due to drought.

Important Date

Sales Closing -----May 31, 2000
Applications received after May 31, 2000 will not become effective until October 1, 2000.

Insurance Period

Coverage will begin 30 days after receipt of your signed application, if accepted. For policies currently in effect, coverage for year 2000 begins October 1, 1999. Coverage will end at the earliest of:

- The date of final adjustment of a claim when total indemnities equal the amount of insurance
- Removal of bare root nursery plant material from the field
- Removal of all other insured plant material from the nursery 11:50 p.m. on September 30,2000.

Plant Inventory Value Report

A Plant Inventory Value Report must accompany your insurance application. This report declares the value of your insurable plants. For existing policies, the report is due no later than September 1, 1999. Adequate records must be maintained to substantiate the reported data. Revisions to increase the reported inventory value may be allowed, but must be made in writing before May 31, 2000.

Coverage Amounts

Catastrophic (CAT) Coverage – 27 ½% of your plant inventory value

Limited Coverage – 50, 55, or 60% of your plant inventory value

Additional Coverage – 65, 70, 75% of your plant inventory value

For CAT coverage, you pay only a \$60 administrative fee. For buy-up (limited or additional) coverage, you pay a subsidized premium amount based on your county rate, level of coverage, and inventory value.

Amount of Insurance –The result of multiplying the full value of all insurable plants in each basic unit by coverage level percentage, multiplied by a price election percentage, multiplied by your share.

Eligible Plant List – Includes information such as botanical and common names of insurable plants and winter protection requirements. Available on CD-ROM at your agent’s office.

Loss Example – Nursery

(This example assumes a 65% coverage level and a 100% price election)

\$100,000	plant inventory value
x .65	coverage level
\$ 65,000	insurable inventory
x 1.00	price election percentage
\$ 65,000	

In the event of a loss:

\$100,000	field market value before loss
- 50,000	field market value after loss
\$ 50,000	value of loss
- 35,000	deductible (1 minus the percent of coverage level x the plant inventory value); (1 - .65) X \$1000,000 = \$35,000
\$ 15,000	adjusted loss
x 1.00	price election percentage
\$ 15,000	indemnity (before premium costs)

Reprinted from *Green Business Reporter*, January, 2000. Vol. 10, No. 12.

IS THE FUTURE ONE STOP SHOPPING?
Dewey M. Caron & Susan P. Whitney
Department of Entomology
& Applied Ecology

The most recent Pest Control Technology magazine, an industry magazine for PCO’s featured a special section entitled “Growth Market: Lawn Care.” On the PCT web site www.pctonline.com there is a related article on the “newest trends in this growing industry.” Both the magazine article and web site review lawn care as an aid to pest control firms “bridging their business into lawn services.” One author calls lawn care “a wide-open market.”

Pest Control Technology magazine considers lawn care a “sister” service or “filler business” that pest control firms need to investigate. The magazine states that combining both businesses leads toward a “one-stop shopping approach to maintenance.” Some companies maintain separate facilities but others prefer cross training of employees. The concept they broach is that homeowners appreciate one company providing the home services they seek since many homeowners do not understand the differences between lawn and structural pest control. As consumers, we would not seek one doctor to meet all our health needs – could your dentist treat your ulcers or fallen arches along with cleaning your teeth and supplying braces?

The most important element, say successful companies doing both structural pest control and lawn care, is “education.” Any effort to add another business emphasis must include doing homework before adding services in another field. Lawn care, compared to pest control, requires more expensive equipment. The laws and regulations of structural pest control are different from those in the lawn care business. To check out what is required, contact the Delaware Department of Agriculture.

To find out about educational training/training aids contact Cooperative Extension or professional organizations – the DPCA (Delaware Pest Control Association) and DNLA (Delaware Nursery and Landscape Association) respectively. The DPCA offers an annual short course and conference each February. Cooperative Extension has offered technician training short courses in the past. For lawn care, the DNLA has meetings on turf and landscape issues at the Summer Turf Nursery Expo in Smyrna, at the Turfgrass Conference in Hockessin, and at the DE Hort Industry Expo in Dover. Cooperative Extension offers short courses and instruction on pest control, business topics, and horticultural aspects throughout the year. Call: 831-2531 for a brochure from the U of D, listing 2000 short course offerings.

Termite control has some special regulations. To obtain a business license for termite structural pest control, a company must have an employee who has held a structural pest control pesticide applicators license for 2 years within the last 3 years. A license in one category (7B wood destroying pest control or 7A general pest control) does not cover lawn pest control, which is category 3). Recertification credits are needed for each category for which a business does pest control.

Finding suitable employees is a difficult task common to both structural pest control and lawn care. Companies in both fields are doing business differently than they did 10 years ago. Lawn care is growing more rapidly than pest control but, in both cases, the need for better-educated, highly motivated employees has accelerated. Retaining good employees is a challenge common to both as well. If the businesses become competitors it probably is a good idea to get to know them better and, if conditions warrant, expansion of lawn care into household pest control or vice versa might be an appropriate response to the competition.

GOLD MEDAL PLANT AWARD
Steve Maurer
The Pennsylvania Horticultural Society

The Pennsylvania Horticultural Society – which has just named six Gold Medal winners for the year 2000 – is launching an outreach effort to familiarize gardeners all over the region with the Gold Medal tag. Plants that receive the Gold Medal Plant Award designation are easy to come by, have exceptional attributes for ease of growing, and make a great contribution to regional gardening needs. Calculated under an intensive review period by expert horticulturist, growers, landscapers, and gardeners, these extraordinary plants have met the highest standards for disease resistance, ease of care, and beauty.

Six prominent plants have been selected as the 2000 Gold Medal Plant Award winner.

Acer buergerianum is an ideal small tree for today's landscape. Slow growing to 20% 25' with an equal spread, the Trident Maple adds interest to the garden year round. Fall color varies from yellow to red but is always striking. In the winter an interesting exfoliating bark is revealed. It is pollution tolerant and will survive dry conditions. Hardy in zones 5-9.

Aronia arbutifolia 'Brilliantissima' adds fall and winter luster to the landscape with brilliant scarlet foliage and large crimson berries. A stoloniferous shrub, individual plants grow slowly to 6' with 3'-5' spread. The red fruit persists long into the winter. Chokeberry will grow in sun or shade and is tolerant of moist or dry soil conditions. Hardy in zones 4-9.

Parrotia persica is an elegant tree sure to make an impact on the landscape with its architectural branch structure. Growing to 20% 40' with a 15'-30' spread, Parrotia has glossy dark green leaves and is pest free. Fall color ranges from

yellow to orange through purple and red tones but is always spectacular. Hardy in zones 4-8.

Quercus alba is a grand old tree that is sorely underused in the modern landscape. The white oak is longer lived, harder wooded, and more broadly tolerant of soil types and moisture levels than any other shade tree. It has a slow growth rate but in time can reach 80'-100' in height and spread – a tree for your grandchildren to treasure! Hardy in zones 3-9.

Syringa meyeri 'Palibin' is a finely textured, compact shrub that deserves a place in every garden. 'Palibin' grows rapidly when young but remains a compact 4' – 8' at maturity. Each spring, this lilac will delight you with fragrant violet – purple 2' – 4' panicles covering literally every spot on the shrub. It could be used as a hedge or in a mixed border. Imagine – no mildew either! Hardy in zones 3-7.

Weigela florida 'Alexandra' Wine & Rose™ is a delightful shrub that will add a dash of drama to the garden. Growing to 4' – 5' with a 3' – 4' spread, Wine & Rose™ displays burgundy leaves highlighted by hot pink flowers in May. As autumn approaches the leaf color intensifies. Grow in full sun for best color. Hardy in zones 4-9.

A complete list of Gold Medal Plants and sources along with profiles of each plant can be found on the Pennsylvania Horticultural Society website at www.libeMnet.org/Dhs or by mail with a self addressed stamped (.55) envelope to PHS c/o Gold Medal, 100 N. 20th Street, 5th Floor, Philadelphia, PA 19103.

VNLA – INVASIVE PLANT ISSUES PRESENTATION TO BOARD

Ted Scott

Editor's Note: *The following is a transcript of a presentation about invasive plants to the VNLA Board. Obviously, you can't see the slides, but I have included the dialog because the slides are described well enough to visualize their content. This is an interesting perspective on a critical issue for the nursery and landscape industry. I hope it will spark debate and I welcome your responses. I will continue to look for treatments of this topic that portray various aspects of the issue and include them in future newsletters.*

Good afternoon. I asked for an opportunity to talk to you on the subject of invasive exotic plants, and I thank you for granting that request. I intend to be brief.

I want to start with two definitions.

1. A native plant, for our purposes, is a plant that grew in a region of North America prior to the arrival of the first European settlers on the continent.
2. An invasive exotic plant is an alien or nonnative plant introduced into a region of North America, either purposely or accidentally, which spreads rapidly and crowds out our native plants.

Two comments: 1. Only a few exotic plants are bad; many are very useful as represented by almost all of our vegetables and many of our agricultural crops as well as thousands of beautiful species and cultivars adopted for horticultural purposes.

2. The Virginia Native Plant Society does NOT subscribe to the "Natives Only" philosophy. I am sure you are aware of groups or organizations that are promoting the exclusive

use of native plants for landscaping and gardening. We do not subscribe to that practice, but we do encourage the protection of native plants and the use of native plants when appropriate.

Invasive exotic plants have become a problem of enormous magnitude. Literally billions of dollars are being spent trying to control agricultural weeds and weeds blocking waterways. We are rapidly approaching the day when we will be spending billions of dollars attempting to control and eradicate Invasive exotic plants other than agricultural weeds. On public lands in the western part of our country we are losing 4600 acres a day to invasive exotic plants. At a conference I attended in November, a representative of the USDA announced that we are losing more than 280,00 acres a year to purple loosestrife.

The Virginia Native Plant Society first expressed its concern about the destruction of native habitat by invasive exotics in early 1992. At that time it started a program of education, immediately joined by the Department of Conservation and Recreation's Division of Natural Heritage. Here are two sets of publications prepared jointly by those two organizations.

Unfortunately, the public's knowledge of the subject is almost nonexistent. Some of the public may have read of problems in Florida or California but few recognized the problems we have here in Virginia. Let me show you a few slides that will save a lot of words in explaining just what we are concerned about.

1. **Oriental Bittersweet:** (1) is a vine from east Asia and seen here along the Sawmill River Parkway north of New York city;

This is a scene along the Blue Ridge Parkway south of Roanoke where it is choking out the

spectacular native flame azaleas.

This vine is now being spread by birds from infestations such as these to woodland habitats, eventually resulting in the trees and shrubs being destroyed by ice weighing them down. Some states, e.g., PA and MA have planted it along embankments on the sides of highways. There is a major infestation at the junction of Dulles Access Highway and I-495. Birds are a major vector for spreading plants with berries that are attractive as food.

2. **Five Lobed Akebia** or chocolate wine (*Akebia quinata*) is another east Asian vine used on garden walls, trellises, pergolas, etc. (b) and is shown here as part of a four acre infestation in the National Natural Landmark Woods at Montpelier, President Madison's historic home. (c) This is a tree trunk covered by the vine. The infestation is apparently the result of careless disposal of garden trash many years ago.

3. **Chinese wisteria** (*Wisteria sinensis*) spreads from garden clippings under favorable conditions as well as from seeds and stolons. Here it has climbed two large white oaks. Japanese wisteria (*Wisteria floribunda*) will do the same, and both are very difficult to eradicate or control once an infestation is established.

4. **Porcelain-berry** (*Ampelopsis brevipedunculata*), another vine from east Asia, is currently quite popular and receiving enthusiastic recommendations at garden centers. (b) This is a drawing on the cover page of the American Assoc. of Botanical Gardens and Arboreta's Newsletter for July 1991. The footnote under the drawing calls attention to the fact that the plant is recommended to nurserymen in the Midwest by the Chicago Botanic Garden. (c) Here we see it covering all the shrubs in a yard in Cape May, New Jersey. (d) And here it covers mature trees, killing them by shading, in Potomac Overlook Park in

Arlington, Va. (e) This is a view of a park area in Georgetown, DC where it has spread across the line fence from the Dumbarton Oaks' garden where it is used on the balustrades in the garden.

5. There are six **Bush Honeysuckles** of Asiatic origin whose fruit, yellow and red berries, are attractive to birds that eat them and then spread the seeds across the countryside.

6. There are several **privet** shrubs that are spread by birds and small mammals which eventually form dense shade that kills many of our native woodland plants.

7. **Winged Burning Bush** (*Euonymus alatus*), an unpleasant surprise to some of you perhaps, is a shrub whose berries the birds love and spread the seeds. The woods in the James Madison University Arboretum are full of the plant. There, it is not as obvious as it is in full light, because it doesn't turn red in the considerable shade. It is a most attractive fall plant, and with the widespread use of it in landscaping commercial properties and highways, we are very concerned about what the future has in store for us.

8. **Autumn Olive** (*Elaeagnus umbellata*) used to be recommended for backyard planting for birds but not anymore. It is out of control in many parts of Virginia (b), which should be no surprise to anyone who has seen the prodigious fruit set of the plant. (c) This is a field near milepost 232 on I-81 between Harrisonburg and Staunton that has been completely taken over by autumn olive except for the cedars still surviving. It is easily viewed only when driving south. Unfortunately, in addition to the turkey hunters and bird clubs, there are several of our state agencies planting this shrub.

9. **Parrot's Feather** (*Myriophyllum aquaticum*), a native of the Amazon basin, is a

favorite among water gardeners and is currently a growing favorite in garden centers. This slide shows an infestation in a friend's nursery pond. I warned him. He said he would watch it, but he didn't watch it close enough. While little known in many areas, it is causing enormous problems in other areas across the country. It is one of the most difficult plants to control in still water or gently flowing streams. It spreads rapidly through growth or fragments of plant stems. My nurseryman friend did learn that, if a pond can be drawn down enough, a hard freeze would kill the plant. Propagation by seed is not a problem since no male plants are yet known to exist in North America.

These few examples of invasive exotic plants, I think, illustrate the dimensions of the problems that we see us facing, including potential problems because of popular horticultural plants being involved. They represent less than twenty per cent of the problem currently facing us if we are to protect our bio-diversity—something that scientists have only recently realized to be of enormous importance to the future well being of the human race. We cannot recklessly continue to ignore the biological devastation occurring around us even though most observers don't recognize what is happening.

I am convinced that most nurserymen are recognizing the ethical aspect of our continuing to ignore the problem of invasive exotic plants. In the July 15, 1999 issue of the American Nurseryman there is an article reporting on the unedited responses of nine horticultural professionals to a series of seven questions about their views of the invasive plant problem. There is much in their answers that encourages me to try to develop a dialog with your organization to try to improve the present situation in Virginia by taking steps (1) to prevent the importation of invasive plants and (2) to control the spread of those already here. Nurserymen and professional landscapers are in

a key position to play an effective role.

So the real purpose of my talk to you today is to request that you appoint whatever representation you wish to enter into a dialog with the Virginia Native Plant Society to see if we can't work together to limit the spread of invasive alien plants.

Reprinted from *VNLA Newsletter*,
January/February 2000.

PRODUCTION AND POSTPRODUCTION REQUIREMENTS OF GAURA

Thomas M. Blessington

David L. Clement

Rondalyn M. Resser

Sarah E. Tater

Susan M Tater

**Central Research and Education Center
University of Maryland**

General Characteristics of *Gaura lindheimeri*

- Scientific name: *Gaura lindheimeri*
'Whirling butterflies'
- Common name: Gaura
- Native to Texas and Mexico
- Versatile and resilient perennial, grows in zones 5-10
- Grows to 3-4 feet in height
- Flower color range may be white, pink, or yellow in some species
- Tall, thin stems, blooms all season
- Foliage is dark green, lanceolate, may turn a deep purple in cold temperatures
- Seeds freely

Growth and Development

- Propagated by division in spring or fall, stem cuttings, or by seed

- Clumps are best divided in early spring or after flowering
- Vegetative cuttings are generally preferred as they are true to the cultivar characteristics
- Vegetative cuttings are taken in the summer due to extended day length
- Cuttings are grown under mist for 1 week
- Rooting occurs in 7 days
- A soft pinch can be applied to each plant after 13 weeks
- Flowering occurs after 17 weeks
- Seed propagated plants may show some variance
- Seeds will sprout in 5-11 days at 70°F
- Seedlings can be transplanted 21-28 days after sowing
- Seeds sown from February to March generally flower by May
- 6 weeks of cold at temperatures of 32-45° is recommended as a cold treatment for flowering
- Cold treatment increases flower number, slightly decreases flowering time, and improves plant vigor
- Plants tolerate cold exposure if water stress is avoided
- Rich, well-drained soils will help plants tolerate extended drought and heat stress
- Maintain a substrate pH of 5.8-6.5
- Provide a constant rate of 100 ppm with a 20-10-20 fertilizer

Light

- Facultative long day plant
- Plants bloom under short and long days
- Flowering time is faster under long days
- Plants grown under 13, 14, 16, or 24 hour photoperiods, and a 4 hour night interruption bloomed faster than plants grown under 10 and 12 hour photoperiods

- Grows best in full sun
- Supplemental lighting from high pressure sodium lamps improves quality of plants during the winter
- Incandescent lamps cause elongation

Growth Regulation

- Require growth regulators due to tall natural habit
- Sumagic will reduce the final plant height by 32-48 cm
- However, applications are not permanent and plants will eventually begin to elongate
- Pinching at the start of forcing may also be effective in decreasing height and increasing lateral branching

Scheduling

- Time to flower of plants grown at 64°F is 7 weeks; 6 weeks at 68°F; 5 weeks at 74°F
- Plants flower faster at higher temperatures, but overall quality is greatly reduced
- During forcing, temperatures of 64-74°F improve plant quality
- Apply a soft pinch 2-3 weeks after start of forcing
- Days from visible bud to flower at 64°F is 18 days; at 68°F, 15 days; at 74°F, 13 days

Diseases

- *Synchytrium fulgens*, leaf gall
- *Peronospora arthurii*, downy mildew
- *Erysiphe polygoni*, powdery mildew
- *Phyllosticta* sp., leaf spot
- *Septoria*, leaf spot
- Remove infected foliage

- Keep humidity levels low

Postproduction

- Long blooming time
- Remove spent flowers to encourage flowering
- Drought tolerant and sturdy, retains quality under retail conditions
- Plants can be cut all the way back to encourage new growth

Summary

- Provide plants with at least 6 weeks of cold at 41°F before long day treatment
- Provide plants with long days after a cold treatment
- Long days can be provided by natural or extended photoperiods 13 hours or more or by night interruption from 10 PM to 2 am with a minimum light intensity of 10fc
- Provide with supplemental lighting from high pressure sodium lamps during naturally dark conditions
- Force between 64°F and 74°F

Cultivars

‘Corrir Gold’: variegated form with creamy and gold markings on the foliage

‘Siskiyou Pink’: flowers are deep pink

‘Swirling Butterflies’: dwarf form

Reprinted from *Free State Nursery News*, February 2000.

Publications

The Pesticide Book –This book covers all categories of pesticides – from their chemistry, mechanisms and modes of action, to their handling, storage and disposal. Additional information on the application of pesticides is also supplied, augmented by valuable lists of restricted use, suspended or cancelled pesticides. The four comprehensive appendixes list all of the major insecticides, herbicides and plant growth regulators, fungicides and bactericides, and rodenticides, providing the common and proprietary names, basic manufacturer, chemical name, major uses and oral and dermal toxicities for each chemical. Now available at \$35 each from Thomson Publications, PO Box 9335, Fresno, CA 93791. Phone 559-435-2163, Fax: 559-435-8319.

Tree, Turf & Ornamental Pesticide Guide. The book has just been revised and is available from Thomson Publications for \$21.00. It is a cross reference to the ornamentals, trees, turf and other plants and what products are registered on them. These are divided into insecticides, herbicides, fungicides and growth regulators. Then each chemical is listed and what it will control. A new feature in this edition is a cross reference of ornamental plants with common names and botanical names.

The 2000 Insecticide Herbicide Fungicide Quick Guide. This book, which has been published yearly for over 30 years, has been newly revised for the new millennium. It is a quick guide to the products registered on the individual crops and then each product is listed with the pests controlled. Ideal if you are a PCA, PCO, university or extension person, etc. and you need a quick answer. Priced at \$19.95 and available from Thomson Publications.

Penstemons by Robert Nold. Penstemons are

amazingly diverse-in size, flower, color and shape, leaf thickness, and habitat. The book includes chapters on cultivation, morphology and pollination. Along with information on nomenclature and divisions of the genus, are species descriptions, which comprise more than half of the book. These descriptions include information on distribution, habitat, hardiness, garden-worthiness, and probable flowering time. Included are 12 botanical paintings by Cindy Nelson-Nold and 43 color photos. Timber Press, Portland, Ore.

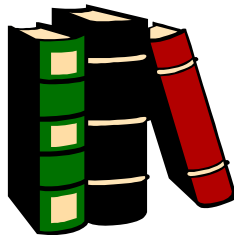
Discovering Annuals by Graham Rice. This book discusses Rices' favorite annuals in this lively, informative and opinionated book. A key asset of "Discovering Annuals" is the extensive information on annuals well suited to filling "gaps" in the garden or in containers. The book contains comprehensive instruction on raising annuals, planting, and care. All plants described can be grown from seed; propagation guidelines are included. Timber Press, Inc., Portland, Ore.

The Greenhouse and Nursery Handbook. A complete guide to growing and selling ornamental plants and contains the basic technical information necessary to produce containerized crops of flowers, foliage plants, shrubs and trees. This book is focused toward growers who wish to produce already crops in small to medium-sized operations. Andmar Press, Mills, Wyo.

Floriculture by John M. Dole and Harold F. Wilkins. This book contains sections on propagation, nutrition and plant growth regulations, as well as sections on greenhouse construction, marketing, business management and greenhouse-grown bedding, container and cutflower crops. Prentice Hall, Upper Saddle River, NJ.

Three Top PGMS Guides. The three leading guides for grounds professionals produced by the Professional Grounds Management Society may be purchased singly or together in a new three-ring vinyl binder. Included are the industry's "estimating Bible", the Grounds Estimating Guide, plus the Grounds Maintenance Management Guidelines and the Grounds Management Forms & Job Descriptions Guide. Prices for the three books, respectively, are \$35, \$25 and \$25, plus \$5 shipping for either or all together. If all three were ordered, the total price (incl. Shipping) would be \$90. Together, the three guides provide a much greater practical collection of practical information than from any source in the Green Industry. ARS Information Staff, 5601 Sunnyside Ave., Rm:1-2251, Beltsville, MD 20705-5128, (301)504-1617, fax:504-1648.

Gardening With Kids Catalog. The catalog contains over 100 products selected, and many designed, by NGA staff to facilitate interest, learning and enjoyment. Two examples of interest that the catalog contains are: NGA's GrowLab™ Indoor Light Gardens, and Professional Horticultural Greenhouse. The Gardening with Kids catalog emphasizes the NGA's mission to renew fundamental links between people, plants, and the earth while advancing multi-disciplinary learning. Provided by Mitchell Kurker, National Gardening Association, 1-800-LETSGRO (800-538-7476), www.kidsgardening.com



Pesticide News

Insecticides:

ACETAMIPRID 70 WP(acetamiprid) – Rhone-Poulenc-Registration is expected in the near future on ornamentals to control aphids, whiteflies and mealbugs.

ADDRESS (acephate) – Rhom & Haas – A new formulation being developed for use on cotton, vegetables and ornamentals.

AZADIRACHTIN – As a result of the IR-4 Project 29 new ornamental usages can be added to their label.

AKARI (fenpyroximate) – Aventis – A new insecticide being developed for use on hops, grapes and greenhouse ornamentals.

ALERT (chlorfenapyr) – American Cyanamid – EPA received an application to register this new active ingredient on ornamental crops grown in greenhouses to control mites, armyworms, cabbage looper, soybean looper, thrips and whiteflies. Comments must be received by 12-20-99. (FR Vol. 64, 11-19-99)

CARZOL (formetanate) – Aventis – Label changes required by EPA include the maximum application rate of 1.25 lbs ai per acre on food crops and 1 lb ai per acre on alfalfa grown for seed. The product can no longer be used on plums, prunes or greenhouse grown ornamentals. Also, it can no longer be used in FL. All Carzol products without the new label cannot be sold after 6-1-2000.

CITATION (cyromazine) – Novartis – As a result of the IR-4 Project they can now add to their label the usage on lobelia.

CONSERVE SC (spinosad) – Dow Agro Sciences – Added to their label the control of variegated cutworms, azalea caterpillar, canker worm, diamond back moth, pear sawfly and red necked pine sawfly.

DELTA GARD (deltamethrin) – AgrEvo – As a result of the IR-4 Project they can now add to their label the usage on over 30 additional ornamental species.

DYCARB 76 WP (bendiocarb) – AgrEvo – This product will be replaced with a new brand name Closure 76WP. It will no longer be registered on interior landscapes but the rest of the label remains the same. A similar formulation, Trucam, will retain the interiorscape usages but will not be registered for use in greenhouses.

ENDEAVOR 50 WG (pymetrozine) – Novartis – A new insecticide being developed for use on ornamentals to control aphids and whiteflies.

FLAGSHIP (thiamethoxam) – Novartis – Registration is expected in the near future for usage on greenhouse and interiorscape ornamentals to control sucking insects such as aphids and whiteflies.

MERIT (imidacloprid) – Bayer – Added to their label the control of cutworms.

OVATION (clofentezine) – AgrEvo – A new miticide that will soon be registered for use on ornamentals. Marketing will be done by Scotts for use in greenhouses.

PLANTFUME 103 (sulfotepp) – Plant Products Corp. – Due to the high cost of re-registration the company has proposed to EPA to voluntary cancellation of the usage of this product on greenhouse ornamentals and vegetables effective 9-30-2002. Stock in distributor inventory can be sold until 9-30-2004.

PYLON (chlorfenapyr) – American Cyanamid – Registration is expected in the near future on greenhouse ornamentals to control mites and thrips. It will be marketed by Olympic Hort Products.

SANMITE (pyridadben) – BASF – As a result of the IR-4 Project they can now add to their label the usage on over 25 additional ornamental species.

ULTRA FINE SPRAY OIL (petroleum oil) – Sun – As a result of the IR-4 Project they can now add to their label the usage on ornamental cabbage and kale.

V-10066 (clothianidin) – Valent/Takeda - Being developed for use on apples, pears, turf and ornamentals.

VISION (cyfluthrin/imidacloprid) – Bayer – A combination insecticide being marketed to the home and garden market to control various insects on lawns and ornamentals.

Herbicides:

ACQUIRE (glyphosate) – BASF – A new formulation that will be available this year.

CLOPYRALID – Dow AgroSciences – As a result of the IR-4 Project they can now add to their label the usage on boxwood, flowering dogwood, juniper, potentilla, plane trees, spirea and sycamore.

DIMENSION (dithiopyr) – Rohm & Haas – Reduced the over seeding time interval from 12 to 8 weeks and added 21 more ornamental species to the label.

GOAL (oxyfluorfen) – Rohm & Haas – As a result of the IR-4 Project they can now add to their label the usage on maples.

PENNANT (metolachlor) – Novartis – As a result of the IR-4 Project they can now add to their label the usage on winged elm and privet.

PENNANT MAGNUM (s-metolachlor) – Novartis – A new formulation being introduced for use in nurseries, turf and landscape plantings.

ROUDUP PRO DRY (glyphosate) – Monsanto – A recently released dry formulation of Roundup.

SURFLAN – (oryzalin) – Dow AgroSciences – As a result of the IR-4 Project they can now add to their label the usage on Southern magnolia.

TREFLAN (trifluralin) – Dow AgroSciences – As a result of the IR-4 Project they can now add to their label the usage on areca palm, feverfew, gazania, hair grass, hardy mum, matricaria, statice and stocks.

TRUPOWER (MCPA)/bromacil/clopyralid) – Riverdale – A new turf herbicide designed to control hard to kill broadleaf weeds.

Fungicides:

AG-10 (ampelomyces quisqualis) – Ecogen – As a result of the IR-4 Project they can now add the usage of 13 new ornamentals to their label.

BAYLETON (triadimefon) – Bayer – as a result of the IR-4 Project they can now add to their label the usage on lawn leaf, sugar maple, white oak and tail flower.

BIO-TREK (trichoderma harzianum) – Bio works Inc – As a result of the IR-4 Project they can now add to their label the usage on daffodil, lilies and tulips.

C9-1 (pantoea agglomerans) – Plant Health Technologies – A new bio-fungicide being

developed for use on apples and pears to control fire blight.

CAPTAN – The manufacturer is voluntarily canceling Uses on turf sites, except sod farms and golf courses.

COMPASS 50WG (trifloxystrobin) – Novartis – A new fungicide being developed for use on ornamentals to control powdery mildew and rusts. EPA approved an application to register this new active ingredient to control certain foliar, stem and root diseases of turfgrass on golf courses, institutional, commercial and residential lawns, sod farms, ornamentals grown in interiorscapes, field nursery plantings, forest nurseries, residential and commercial landscapes, greenhouses, lath and shade houses, containers and other enclosed structures (FR Vol 65, 1-12-2000)

CONTAINS (coninthyrium minitans) – Prophyta – Registration is pending to control Sclerotinia in peanuts for this bio-fungicide. Also being developed for use on canola, lettuce, celery and beans.

COUNTDOWN (chlorothalonil) – Zeneca – A new formulation developed for use on vegetables, fruit trees and ornamentals to control various diseases.

EAGLE (myclobutanil) – Rohm & Haas – Added to their label the control of fusarium patch and snow mold.

ELEVATE 50 WDG (fenhexamid) – Tomen Agro – EPA approved an application to conditionally register this new active ingredient to control Botrytis diseases on grapes, strawberries and ornamentals. (FR Vol. 64, 11-3-99)

ELEXA (carbohydrate bio-fungicide) – Safe Science – This is a new bio-fungicide which

prevents plant diseases by activating the plants natural disease defense mechanism. EPA registration is expected in 2000 on grapes and strawberries to control powdery mildew, downy mildew and gray mold. Additional registration is expected in the future on tomatoes, cucurbits, peppers, potatoes, lettuce and ornamentals.

FERBAM – UCB Chemical – As a result of the IR-4 Project they can now add to their label the usage on carnations and tulips.

FUNGO (thiophanate-methyl) – Scotts – Added to their label the control of gray leaf spot on turf.

HERITAGE (azoxystrobin) – Zeneca – As a result of the IR-4 Project they can now add to their label the usage on over 50 new ornamental species.

LEONE (burkholderia cassia) – Valent – A new bio-fungicide being developed to control Botrytis, Phytophthora and Septoria on potatoes, tomatoes, strawberries, peanuts, turf and ornamentals.

MANCOZEB – As a result of the IR-4 Project they can now add to their label the usage on crape myrtle.

MEDALLION (fluddioxonil) – Novartis – As a result of the IR-4 Project they can now add to their label the usage on chrysanthemum, Elephant's ear, false sunflower, ferns and Shasta daisy.

QUEL (macleaya extract) – Camas Technologies – Proposed to EPA to register this new active ingredient for the foliar control of fungi on greenhouse ornamentals.

QUELL(mefenoxam) – Uniroyal – A new formulation being introduced for usage on turf, conifers and ornamentals to control pythium

blight, phytophthora root rot and downy mildew.

TERRAZOLE (etridiazole) – Uniroyal - As a result of the IR-4 Project they can now add to their label the usage on bleeding heart and fatsia.

TOP SHIELD – (Trichoderma harzianum strain.22) – Bio Works – This new biofungicide has received EPA registration to use on greenhouse grown crops including flowers, vegetables and herbs. It controls powdery mildew, downy mildew, gray mold and other foliar diseases.

TOPSIN-M (thiophanate-methyl) – Elf Atochem – As a result of the IR-4 Project they can now add to their label the usage on 22 new ornamental species.

Miscellaneous:

B-NINE (diminozide) – Uniroyal – As a result of the IR-4 Project they can now add to their label for this growth regulator the usage on 10 new ornamental species.

NOGALL (Agrobacterium radiobacter strain K1026) - Bio-Care Technology Pty. Ltd., c/o U.s. Agent: Amy Roberts, Technology Sciences Group Inc - NOGALL is used as a biological control agent for the prevention of crown gall disease caused by the infection of nursery stock by many virulent strains of Agrobacterium tumefaciens and A. rhizogenes on non-food and non-bearing plants only.

SUMAGIC (uniconazole) – Valent – As a result of the IR-4 Project for this growth regulator they can now add to their label the usage on coleus.

Research Briefs

Propagation:

Use of BA to speed hosta propagation and improve summer quality. Benzladenine (BA) can stimulate offsets for crown division of hosta, but the response to BA is also affected by root mass. Application of BA to divisions with minimal root mass is less effective, therefore growers should either ensure adequate root mass at division or allow sufficient time for root mass development prior to BA application. Summer decline in hosta (in zones 7-9) includes foliar necrosis, reduced vigor, and increased susceptibility to diseases and insects. Summer quality can be enhanced with summer BA application through increased offset production (which masks foliage of mother plant) and reduced foliar necrosis. (H.C. Schultz, G.J. Keever, J.Raymond Kessler, R.R. Dute and J.W. Olive)

Excerpted from J. Environ. Hort 18(1):45-52. March 2000.

Seed germination of Atlantic White Cedar. Stratification, temperature and light requirements necessary to maximize seed germination of Atlantic white cedar vary according to provenance. Although many reports mention that seed germination of this species is inherently poor, this data refutes that. Germination can be greatly enhanced by rigorous seed cleaning followed by stratification for particular durations, and then subjecting seeds to an 8/16-h thermoperiod of 30/20 C with daily photoperiods of greater than or equal to one hour. (L.G. Jull and F.A. Blazich)

Excerpted from HortScience, Vol 35(1):132-135.

Rooting shrub cuttings in media amended with biosolids. Stem cuttings of six shrub taxa were rooted in media containing four different biosolids:

1. 100% recycled, de-inked newspapers and tissues.
2. bleached kraft pulp and recycled fiber from corrugated cartons.
3. 25% thermomechanical, softwood pulp and 75% de-inked newspapers and magazines.
4. 100% virgin market pulp.

Paper mill biosolids from wide range of sources can be used as a rooting medium amendment for propagating deciduous shrub cuttings. The four biosolids tested showed little adverse effects on rooting. (C.Chong, B. Hamersma and K.L. Bellamy)

Excerpted from American Nurseryman, March 15, 2000.

Greenhouse production:

Mycorrhizal inoculation for bedding plant production. Mycorrhizal inoculations are suggested for bedding plants to increase P uptake and reduce the use of P fertilizer. Species varied in their extent of colonization (*Coleus*, *Petunia* and *Viola* were colonized more than *Impatiens*, *Tagetes* and *Salvia*). Inoculation at sowing worked best. But mycorrhizal colonization was significantly reduced by higher P concentrations. It may not be useful to inoculate with mycorrhizal fungi in a peat-based media when the crop is fertilized with soluble P. Despite the lack of growth increase as a consequence of mycorrhizal colonization in this study, inoculation may still be beneficial depending on the medium into which the plants are transplanted. Because many bedding plants will be transplanted into mineral soil in which P buffering may be strong, inoculation at the greenhouse stage may eventually prove to be beneficial during the

outplanting stage. (R.T. Koid, L.L. Landherr, Y.L. Besmer, J.M. Detweiler and E.J. Holcomb)

Excerpted from HortScience 34(7):1217-1220, 1999.

Growth retardants on Scaevola. Uniconazole medium drench at 1.0 mg/L or paclobutrazol medium drench at 4 mg/L can be recommended to commercial flower growers to reduce plant width and flower stem length of *S. aemula* 'New Wonder' without reducing the numbers of flower stems or flowers per stem or delaying flowering. Flower number per cm would be increased, improving the appearance of flowering stems. These drench treatments would be particularly useful to growers who produce *S. aemula* 'New Wonder' as 10-cm containers during early spring under low-light conditions. (T.W. Starman and M.S. Williams)

Excerpted from HortScience 35(1):36-38.

Field Production:

Deer damage in production nurseries. A majority of respondents to this survey (65%) reported having a problem with deer damage in the nursery. Narrowleaf evergreens were considered to be most preferred by deer. Repellents were considered to be only somewhat effective. In a study conducted at the University of Rhode Island, Tree Guard™, Deer Off™ and Bobbex™ provided some control under low intensity browsing. Both Holly Ridge and Deer Away significantly reduced browsing on 'China Girl' holly, English yew and Anglojap yew 'Nigra.' However two applications of repellent are prescribed, 8-12 weeks apart. These materials require a minimum temperature of 45 F for application. (N.C. Lemieux, B.K. Maynard and W.A. Johnson)

Excerpted from J. Environ. Hort 18(1):5-8. March 2000.

Container Production:

Using tensiometers to control fertigation and reduce N leaching. Container grown plants of Weigelia and Campanula were treated with low (0.95 dS/m), medium (1.25 dS/m) and high (2.0 dS/m) nitrogen solutions. Fertigation frequency was controlled by tensiometers in the containers set to maintain the appropriate moisture tension. All three treatments reduced N leaching. The lowest conductivity solution resulted in lower fresh and dry weights. The highest conductivity solution resulted in more leaching. (L. Andersen and C.W. Hansen)

Excerpted from J. Environ. Hort 18(1):8-12. March 2000.

Flood irrigation reduced N requirements.

Flood beds, 17 feet wide and 30 feet long were constructed on a compacted sand base with 2 x 8 inch timber as sides. The base and sides were lined with 40-mil thick rubber liner. Three tiles, made from 2-inch perforated, flexible plastic drain tile were spaced equidistantly and attached to 1.5-inch PVC headers at both end of beds. To supply the water, a 2-inch PVC irrigation pipe penetrated the rubber liner and attached to the end of each PVC header. The header on the opposite end drained water from the bed into a catch basin for return to the pond. Beds were filled with 4 inches of ½ clear, crushed stone, which was leveled and covered with a woven poly fabric weed barrier. Without reducing plant growth, fertilizer rates were reduced by one-third with the use of flood irrigation compared to recommended rates of controlled release fertilizer with overhead irrigation. (G.Lumis, P. Purvis and L. Taurins)

Excerpted from J. Environ. Hort 18(1):13-17. March 2000.

Postemergence control of Bittercress in container-grown crops. Bittercress can be controlled with preemergence herbicides. But if bittercress control is missed, some postemergent products show promise:

Gallery – labeled rate – 1.0 lb ai/A, excellent control with no injury to lirioppe, azalea or holly; control may be dependent on bittercress size and reproductive stage; great promise due to broad label.

Manage – labeled rate – 0.031 to 0.062 lb ai/A, good postemergence control with slight injury to lirioppe and azalea and no injury to holly.

Image – low rates – 0.031, 0.062 and 0.125 lb ai/A, provided control in one of two studies with no injury to lirioppe or holly but injured azalea.

Trimec Southern – good post emergence control but injured lirioppe and severely injured azalea. (J.E. Altland, C.H. Gilliam, J.W. Olive, J.H. Edwards, G.J. Keever, J.R. Kessler, Jr. and D.J. Eakes)

Excerpted from J. Environ. Hort 18(1):23-28. March 2000.

New 7-gallon Cellugro unit. This unit was installed this unit above ground and mulch was bermed up around its sides. Biobarrier (Reemay), coated with Treflan, gave the best root containment results of the materials tested. Prior to planting the 7-gallon unit, a wire basket was inserted into each cell. The basket made tree harvest relatively easy by pulling the baskets out with hay bale hooks. (B. Heins)

Excerpted from VNLA Newsletter November/December 1999.

Mycorrhizal fungi inoculation for container production. Trees for production in standard containers, and the 6 quart Cellugro unit, were

inoculated with mycorrhizal fungi to determine the feasibility of colonization during production. Unfortunately at harvest very little fungal colonization was found for any of the four tree species used. Colonization was particularly low in the Cellugro units where the mix stayed wetter than in the containers. Colonization in the containers was primarily on roots in the top inch or two of mix on the southwest container side – the hottest and driest rootball area. It was concluded that standard irrigation rates are excessive for good fungal colonization and growth. If colonization is desired during production a lesser irrigation rate, or a more even distribution of water (pulse vs. one daily irrigation), might be necessary. (B. Heins)

Excerpted from VNLA Newsletter, November/December 1999.

Compost vs. bark/sand. A quick comparison between the local (Eastern Shore of Virginia) leaf-grass compost product – Nature’s Blend – from the Southeastern Public Service Authority – and a standard bark/sand mix – with no supplemental fertilization – was very revealing. Tree seedlings in the compost were on average three times larger than those in the bark mix. Those in the compost were benefiting from available nutrients and possibly from colonization by native mycorrhizal fungi in the compost. Compost should be considered as a standard component of most nursery mixes. (B. Appleton).

Excerpted from VNLA Newsletter, November/December 1999.

Spurge control in Pot-in-Pot Production. All four compounds tested reduced spurge populations compared to untreated plots, but the effectiveness of treatments, from most to least effective was: Penulum, Factor, Surflan and Goal. All compounds were more effective at higher applications rates so it appears growers

should use the high end of the recommended rate range to improve spurge control. Repeat applications will probably be needed to obtain season-long spurge control. (J.F. Derr)

Excerpted from VNLA Newsletter, January/February 2000.

Weed suppression in containers using copper-treated fabric disks. A commercially available copper-treated disk was evaluated for its effect on weed suppression for container-grown willow oak (*Quercus phellos*). Now weeds grew in containers where disks were used. By the end of the study, all trees in the unweeded control treatments were dead, presumably due to competition for water and/or nutrient, or due to allelopathy. The predominant weed in the untreated control was large crabgrass. No degradation of the Geodisc polypropylene fabric was observed during the 6 months of the study, nor in a previous year of observation. (B.L. Appleton and S.C. French)

Excerpted from HortTechnology January-March 2000 10(1).

Mineralization of Composts. More organic N was mineralized from composted turkey litter (CTL) than from municipal or yard composts, regardless of temperature. The percentage of organic N mineralized from CTL was greater at 45/25 and 45 C than at 25 C. While composted yard and municipal wastes may improve the physical properties of container substrates, they do not supply adequate N to serve as beneficial N fertilizers in containerized plant production. Depending on the species, supplemental fertilizer N may be needed to maximize growth of landscape plants in container substrates amended with CTL. In another study with just CTL, researchers found that to produce growth equivalent to the control, pinebark substrates amended with 8% CTL needed greater than or equal to 2 g N per container for cotoneaster,

whereas no additional fertilizer was needed for rudbeckia. The greatest nutrient value of CTL may be as a P source and a replacement for dolomitic limestone and micronutrients in container-grown plant production. (H.T. Krauss, R.L. Mikkelsen, S.L. Warren)

Excerpted from HortScience 35(1):16-18 and 19-21.

Buffered phosphorus fertilizer.

Rhododendron and forsythia plants were grown in a soilless medium containing one of four phosphorus treatments: soluble P, slow release P, or 0.5% or 1% solid-phase alumina-buffered P (Al-P). Soluble phosphorus concentrations in the leachate were highest for soluble-P treatments and lowest for the Al-P treatments. Al-P supplied adequate P for plant growth throughout the season while substantially reducing P leaching. Forsythia plants produced more shoot dry mass when grown with 0.5% Al-P than with the other treatments, and larger rhododendron plants were produced when fertilized with 1% Al-P. (K.M. Brown C.R. Miller, L. Kuhns, D.J. Beattie and J.P. Lynch)

Excerpted from J. Environ. Hort. 17 (4):153-157.

Accelerator™ containers as a root controlling technology. Accelerator containers are constructed of reflective aluminum and utilize an air root pruning mechanism to control root growth similar to that originally developed in low profile containers. Accelerator containers include anchor fabric panel to reduce blow-over and have reflective surfaces that may influence substrate temperatures. These containers offer an alternative to chemically treated containers or fabric bags to avoid circling root development. Species with requirements for extremely well drained substrate or those with problematic taproots may respond well to production in open

bottom Accelerator containers. Species sensitive to high root-zone temperature may benefit from production in Accelerator containers. Drawbacks include increased blower-over relative to conventional containers, more rapid drying for the substrate, and a propensity for weed growth in the air pruning vents. (M.A. Arnold and G.V. McDonald)

Excerpted from J. Environ. Hort 17(4):168-173.

Landscape:

Bedding plants resistant to Phytophthora.

This study identifies bedding plant taxa that will provide an acceptable display in landscape beds infested with *Phytophthora nicotianae*.

Resistant plants:

Ageratum houstonianum
Celosia ‘Apricot Brandy’
Celosia ‘New Look’
Dahlia ‘Harlequin’
Eustoma grandiflorum
Lobularia ‘Carpet of Snow’
Nicotiana ‘Alta Dwarf White’
Nicotiana ‘Domino Salmon’
Nicotiana ‘Nicki Red’
Pelargonium ‘Multibloom Scarlet Eye’
Petunia ‘Polo Salmon’
Petunia ‘Sugar Daddy’
Portulacca ‘Sundial Peppermint’
Rudbeckia ‘Rustic Dwarf’
Salvia ‘Lady in Red’
Salvia ‘Victoria Blue’
Tagetes ‘Disco Mix’
Tagetes ‘Inca Orange’
Tagetes ‘Inca Yellow’
Tagetes ‘Janie Harmony Improved’
Tagetes ‘Gold Fireworks’
Zinnia angustifolia

Poor performers:

Antirrhinum ‘Liberty White’

Antirrhinum ‘Liberty Mix’
Catharanthus ‘Little Bright Eye’
Catharanthus ‘Tropicana Rose’
Hibiscus ‘Disco Belle Mix’
Impatiens ‘Accent Bright Eye’
Leucanthemum x ‘Alaska’
Melanpodium ‘Medallion’
Salvia ‘Turkestanica’
Torenia ‘Clown Mix’
Verbena ‘Imagination’
Viola ‘Fama See Me’

(T.J. Banko and M.A. Stefani)

*Excerpted from J. Environ. Hort 18(1):40-44.
March 2000.*

Air spade. An Air Spade – a pneumatic soil excavation tool – has a number of uses. Arborists who are using this tool, and similar ones, report that they are good for locating roots relative to construction projects, and for remediation when trees are planted too deep, or when soils have become extremely compacted. Air, blowing through the tool at approximately 1500 mph (a large compressor is required), does not penetrate nonporous objects, thereby blowing soil away but leaving roots virtually intact. (B. Appleton)

*Excerpted from VNLA Newsletter,
November/December 1999.*

Controlling weeds in rose plantings with herbicides. The preemergent herbicides Devrinol, Goal, Surflan, Treflan and Prowl did not injure roses when applied at bud break at label rates. The post-emergent herbicides Ornamec, Poast and Envoy also did not injure roses when applied to roses at bud break or when applied in late spring when plants had fully developed leaves. The data suggest these herbicides could be used safely in rose plantings as directed sprays to suppress encroaching grasses. (M.P. Gonzalez and J. Karlik)

Excerpted from J. Environ. Hort. 17(4):164-167.

Tame and Rotenone are feeding deterrents for Japanese Beetle. The pyrethroid Tame was a very effective Japanese beetle deterrent on ornamental plants in this study. Rotenone was moderately effective. (J.D.Witt, S.L. Warren, T.G. Ramney and J.R. Baker)

Excerpted from J. Environ. Hort. 17(4):203-206.

Turf:

Proxy is an effective growth regulator on bentgrass fairway turf. Proxy is at least as effective as Primo for clipping yield reduction on creeping bentgrass maintained at fairway height. Proxy applied at 4.1 to 8.2 lb ai/A was no more effective than 2.0 to 3.2 lb ai/A in reducing clipping yields. Higher rates tended to reduce turf color and quality by turning the turf lighter green compared to untreated turf of turf treated with Primo. Proxy can be safely applied twice at 28-day intervals during the spring and early summer, but a third application in mid-summer may reduce turf quality. (J Stier, Z. Reicher and G. Hardebeck)

Marketing:

Consumer perceptions of plant quality.

Focus group results - Azalea characteristics most frequently mentioned by focus group participants were fullness, symmetry, new growth, healthy, green foliage or good foliage color, not pot bound, in full bloom, and the presence of an information tag or label.

Surveys - A constant sum scale for azaleas was developed in which respondents were instructed to allocate a total of 100 points among the attributes of full dense foliage, green foliage, symmetry or balance, healthy (no insect or disease damage), label with information, and

adequate pot size. The same photograph of a 'Girard Pink Delight' azalea used in the focus groups was provided as an example. In preliminary results from a sample size of 33, the average response for full dense foliage was 27 (out of 100); for healthy, 27; for green foliage, 16; for symmetry or balance, 15; for a label with information, 11; and for adequate pot size, 4.

The purchase intent survey - Based on responses to the various sets of characteristics represented in the photographs, it was inferred that the most preferred or "best" azalea featured the best symmetry and was densely foliated from the top of the plant down to the container.

Paired comparison survey - With 107 responses, the trend from least preferred to most preferred was toward full foliage on the lower branches of the plant (not "leggy" and an overall fuller and more symmetrical form.

The dollar metric scale - Given a base price of \$3.99, respondents were willing to pay an additional \$.97 for the first place azalea, which represented good symmetry and full foliage on the lower branches, over the last place azalea, which was characterized primarily by bare branches on the lower third of the plant and a lean off-center in the container.

The three other most important quality attributes were healthiness, full dense foliage (no holes or gaps in the body of the plant), and symmetry. (T.E. Glasgow, T.E. Bilderback, T. Johnson, K.B. Perry, and C.D. Safley)

Excerpted from VNLA Newsletter, November/December 1999.

Calendar

April 24 – Longwood Gardens Continuing Education Spring 200. Plant Specialties, Water Gardening Workshop – One session, 6:30-9pm (PS1100E). Location: Potting Shed (Use business entrance). Fee \$59. Registrations may be mailed, or faxes to: 610-388-9806. Address: Continuing Education Courses, Longwood Gardens, Inc., PO Box 501, Kennett Sq., PA 19348-0501. For registration information call: (610)388-1000, ext 507. Web site: www.longwoodgardens.org

May 3, 10, 17 and 24 – Landscape Painting in the Spring Garden. Cost \$69, members \$9, time 9am – 12 noon. Space is limited to 15. Garden Dept, Winterthur Museum, Garden & Library, Winterthur, DE 19735. For more information call (302)888-4600.

May 6 – Successful Gardener Series-Azaleas. Garden Dept, Winterthur Museum, Garden & Library, Winterthur, DE 19735. Space is limited to 20. Time 10am – 11:30am, and meet in the Museum Reception area. Cost \$13, members \$10. For more information call (302)888-4600.

May 13 – The Claude E. Phillips Herbarium is proud to announce a symposium to celebrate the completion of its new facilities. Location: Ulysses S. Washington Jr. Cooperative Extension Center & Herbarium at Delaware State University, Dover, DE. 8:00 a.m. – “Plants and Peoples”. Registration \$25 for symposium plus \$15 for luncheon (\$40 total/person), your check must accompany registration. For further information contact Dr. Arthur O. Tucker (FAX 302-857-6402, E-mail: atucker@dsc.edu)

May 13 and 14 – Special Subject Guided Garden Walks, Azalea Walk. Garden Dept, Winterthur Museum, Garden & Library, Winterthur, DE 19735. For more information call (302)888-4600.

May 19 – Longwood Gardens Continuing Education Spring 200. Spring Weed Identification Walk –One session, 1-4pm (GS1600A). Location: Acer Room/Outdoors (Use business entrance/park in lower lot). Fee \$59. Course is approved for 2 core and 4 category 6 certification credits towards PA pesticide applicator’s license renewal. Credit toward other state pesticide licenses may be available. Registrations may be mailed, or faxes to: 610-388-9806. Address: Continuing Education Courses, Longwood Gardens, Inc., PO Box 501, Kennett Sq., PA 19348-0501. For registration information call: (610)388-1000, ext 507. Web site: www.longwoodgardens.org

June 1 – Pruning Workshop. Ornamental Horticulture Programs, U of D, Site in Newark to be announced 7-9 pm. Cost is \$10. Contact Dot Milsom 832-2531.

June 2 – Longwood Gardens Continuing Education Spring 200. Spring Garden Pest Identification Walk –One session, 1-4pm (GS1200A)/or June 16, 1-4pm (GS1300A). Location: Acer Room/Outdoors (Use business entrance/park in lower lot). Fee \$59. Course is approved for 2 core and 4 category 6 certification credits towards PA pesticide applicator’s license renewal. Credit toward other state pesticide licenses may be available. Registrations may be mailed, or faxes to: 610-388-9806. Address: Continuing Education Courses, Longwood Gardens, Inc., PO Box 501, Kennett Sq., PA 19348-0501. For registration information call: (610)388-1000, ext 507. Web site: www.longwoodgardens.org

June 3 – Successful Gardener Series-Container Gardening for Diverse Conditions, Garden Dept, Winterthur Museum, Garden & Library, Winterthur, DE 19735. Space is limited to 20. Time 10am-11:30am, and meet in the Museum Reception area. Cost \$13, members \$10. For more information call (302)888-4600.

June 7 – Pest Walk, Ornamental Horticulture Programs, U of D. Mt. Cuba Center for the Study of Piedmont Flora. 9 am to 12 pm. Cost is \$ 10. Contact Dot Milsom 831-2531.

June 8 – Longwood Gardens Continuing Education Spring 200. Spring Plant Disease Identification Walk – One session, 1-4pm (GS1400A)/or June 15, 1-4pm (GS1500A) Location: Visitor Center Auditorium/Outdoors (Use main entrance). Fee \$59. Course is approved for 2 core and 4 category 6 certification credits towards PA pesticide applicator’s license renewal. Credit toward other state pesticide licenses may be available. Registrations may be mailed, or faxes to: 610-388-9806. Address: Continuing Education Courses, Longwood Gardens, Inc., PO Box 501, Kennett Sq., PA 19348-0501. For registration information call: (610)388-1000, ext 507. Web site: www.longwoodgardens.org

June 10 – Home Gardens Tour-for Winterthur Members. Advanced registration required by June 8. Space limited. Cost \$55. Rain date, June 17. For more information and reservations call 302-888-4600.

June 11 – Special Subject Guided Garden Walks, Fern Walk. Garden Dept, Winterthur Museum, Garden & Library, Winterthur, DE 19735. Call (302)888-4600.

June 11-13 – The Ecology of Urban Soils: Designing and Managing Soils for the Living Landscape. St. Paul, Minnesota. Contact Cindy Ash (651-454-7250).

June 17 – Longwood Gardens Continuing Education Spring 200. Garden Design Workshop- One session, 9am –12 noon & 1-4pm. Location: Betula Room (Use business entrance). Fee: \$59 (Lunch not included) (Course #GD1200M) . Registrations may be mailed, or faxes to: 610-388-9806. Address: Continuing Education Courses, Longwood Gardens, Inc., PO Box 501, Kennett Sq., PA 19348-0501. For registration information call: (610)388-1000, ext 507. Web site: www.longwoodgardens.org

June 20-21 – New Industry Trends Bus Tour. Trip to Native Plant Nurseries, Pine Barrens and Mail Order/Internet Nurseries in PA, DE and NJ. Overnight at Ship Bottom, NJ. Cost is \$150 (single) or \$130 (double). Contact Dot Milsom 832-2531.

June 21,22,26,28,29 & 30 – Greenhouse Management Short Course, University of Maryland, Cooperative Extension and the Maryland Greenhouse Growers. Maryland Dept. of Agriculture, Annapolis, MD. Contact: Suzanne Klick (301)596-9413.

June 27 – Maryland Greenhouse Growers Nutrient Management Conference, Prince George's Community College.

July 8-12 – 2000 Ohio Florists' Association Short Course, (Educational Seminars) Columbus, OH. Contact: (614)487-1117, Fax: 614-487-1216, e-mail: ofa@ofa.org

July 9, 10 7 12 – 2000 Ohio Florists' Association Short Course, (All-Industry Trade Show) Columbus, OH. Contact: (614)487-1117, Fax: 614-487-1216, e-mail: ofa@ofa.org

July 11-16 – 2000, ANLA Convention, Vancouver, BC Canada. Contact: (202)789-2900, www.anal.org

July 12, 18, 20 – Perennials for the Shade. Ornamental Horticulture Programs, U of D, New Castle County Extension Office, Newark. 3-6 pm. Cost is \$10. Contact Dot Milsom 832-2531.

July 13 – Turf Diagnostic Clinic. Ornamental Horticulture Programs, U of D, University of Delaware Botanic Gardens, Newark, 3-5 pm. Cost is \$25. Contact Dot Milsom 832-2531.

July 25-27 – 2000, PANTS, Ft. Washington, PA. Contact: (610)544-5775.

August 5-9 – International Society of Arborist Annual Meeting – Hosted by the Mid-Atlantic Chapter in Baltimore, MD; Contact (757)363-3906, E-mail: bbple@vt.edu

September 7 – Pest Walk, Ornamental Horticulture Programs, U of D. Research and Education Center, Georgetown. 9 am to 12 pm. Cost is \$ 10. Contact Dot Milsom 831-2531.

September 11, 13 – Weed Identification and Control. Ornamental Horticulture Programs, U of D, New Castle County Extension Office, Newark. 3-6 pm. Cost is \$10. Contact Dot Milsom 832-2531.

September 23-27 – 15th International and 29th National Agricultural Plastics Congress, "Plasticulture 2000", Hershey Lodge and Convention Center in Hershey, PA. For more information call: (814)238-7045 or visit the society's Web site: <http://www.plasticulture.org>.

October 8-11 – Southern Region International Plant Propagators' Society; Chesapeake,VA; Contact (817)882-4148, E-mail: dmorgan@bispublishing.com

October 17 – University of Maryland Cooperative Extension and the Maryland Greenhouse Growers. Md. Dept of Agriculture, Annapolis, MD. Contact Suanne Klick, (310)596-9413.

