

FROM THE PRESIDENT
Christopher Valenti
President, D.A.N.

This is my first article for the D.A.N. news and I am excited to tell you some of the progress the D.A.N. is continuing to make. As president of this association, it is my role to promote the association to the benefit of our entire membership.

The goal of the Delaware Association of Nurserymen is to improve the economic climate for the nursery industry in Delaware. That is a formidable task because the D.A.N. includes members who operate wholesale nurseries, garden centers, lawn care businesses, landscape design and maintenance firms, golf courses and greenhouses. The board of the D.A.N. has recently hired a marketing firm to promote the Certified Nursery Professional (CNP) program to the general public and the nursery industry. We plan to make people aware of the value of the CNP designation. Starting this fall, long-term marketing plans will be developed, beginning with a market survey.

Another program in its final stage of development is the D.A.N.'s Plant of the Year. Each year, starting in 1995, we will promote two plants well-suited for Delaware landscapes (one woody and one herbaceous). The plants will be selected by the D.A.N. membership. Look for more information soon! In January 1995, our marketing firm will kick-off this new promotion with a press conference at our Winter Expo and retailers will be provided with flyers, banners and ad slicks to promote the D.A.N.'s Plant of the Year, 1995. Our goal is to benefit growers, retailers and landscapers in Delaware and to show that the nursery industry is here to serve the public and D.A.N. is here to serve our membership.

The Delaware Department of Agriculture Nursery Industry Survey is nearing completion. The results from this survey should show that the nursery industry is a prominent part of the economy of Delaware. As such, it will be an invaluable tool for the D.A.N. to promote the interests of the membership with state government.

Because our association is so diverse, we have initiated "watchdogs" on our board to look out for the specialized interests within this industry. If something of importance is discovered by one of the "watchdogs," it is presented at our monthly board meetings for discussion and possible follow-up action. One such "watchdog" report was relayed from a D.A.N. member to the board regarding non-licensed, non-regulated weekend "garden centers," who set up on Friday and are gone by Sunday night. Following our meeting, we were in touch with the Department of Agriculture to determine what could be done to regulate these "no-overhead" retailers who compete unfairly with established garden centers. At this time, there is inadequate state funding for regulatory personnel, but we hope to lobby for additional funding for personnel in the state's next fiscal budget. If you would like to discuss one of your concerns with a D.A.N. "watchdog," here are their names and numbers:

Garden Centers - Naomi McCafferty (239-7719)
Greenhouses - Craig Rice (875-2457)
Wholesale Nursery - John Ellingsworth (653-7757) and Dick Sterling (653-7060)
Turf - John Apgar (653-9389)
Landscape - Rosemary Richardson (697-1194)

But don't think your association is all work and no play! We are sponsoring an all-you-can-eat crab feast on September 22, from 6:00 to 9:00 PM at Boondocks Restaurant in Smyrna. Bring the whole family and have a great evening with your friends in the D.A.N.

ASSOCIATION NEWS

Linda Pevey

Executive Director, D.A.N.

The Summer Turf and Nursery Expo took place on August 17 at Apgar Turf Farm in Smyrna. Despite the hurricane and (at times) torrential rain, over 200 people attended. The educational seminars were well received. Thanks to our speakers for a great job. And special thanks to the Apgar family for hosting the Expo again this year.

John Ellingsworth and Forest View Nursery are donating a plaque to the Fischer Greenhouse honoring the D.A.N.'s Hall of Fame members. We thank John for this much deserved recognition of our Hall of Fame honorees.

On Saturday, September 17, we will be conducting our next Research and Education Fund Benefit Auction. It will be held at the Delaware Center for Horticulture in Wilmington in conjunction with their Harvest Festival. We need donations of plant material, hardgoods and services. This auction had already raised over \$5000 for the Fund. We need your support of this important D.A.N. event. Diane Hill is coordinating member donations. You can contact her at Gateway Landscaping at 239-4675. We will also need volunteers to help out the day of the auction. It's a lot of work, but everyone has a great time.

The D.A.N. set up its booth at the Summer MANTS in Baltimore. Several new member applications were received during the course of the show bringing the total to more than 20 new members so far this year. Of course, the exposure gained from such an event can't be estimated very well, but its safe to assume there are a lot more people in the region aware of the programs and activities of our association.

Thanks to the D.A.N. members who set up and manned the booth during the show.

The Members Crab Feast is coming up on September 22 at Boondocks Restaurant, east of Smyrna. Our Social Committee came up with this idea based on your responses to our questionnaire about the type of social events you would like the D.A.N. to sponsor. It will be a fun evening with your fellow D.A.N. members. Bring the whole family. If you need a registration flyer, call me at 629-0329. There will not be a Fall Dinner Dance this year.

Rosemary Richardson has been appointed to the Kent County Rep position on the Board of Directors. John Apgar will be serving on the Board as an At-Large Rep.

The Delaware Turfgrass Conference, which is now co-sponsored by the D.A.N. and Delaware Cooperative Extension, is coming up on October 19 at Hockessin Memorial Hall. Topics include Diseases and Insects of Turf, Networking with your Competitors, Lawn Renovation Starts With Quality Soil, Tough Plants for Tough Sites, Diseases and Insects of Trees and Shrubs, Lawn Care Safety and Converting From Artificial to Natural Turf. If you install or maintain turf, you won't want to miss it. Registration information will be in the mail shortly.

Put January 18 and 19 on your calendar for the 1995 Delaware Horticulture Industry Exp. As always, we have a great program lined up for you.

U OF D NEWS
Susan Barton
Extension Specialist

Herbaceous Landscape Plants and Lawn Establishment and Maintenance were held in August. Both courses were well attended. The Lawn Establishment and Maintenance course was rescheduled for Newark because most of the participants were from New Castle County. If we had held it in Georgetown, we would have had to cancel the class. Those of you in Kent and Sussex county that want short courses nearby--sign up! We are trying to schedule courses for you but if enrollment is low we will have to cancel. There is still time to register for Drafting Techniques for the Landscape Designer (October 12, 19, 26 and November 2, 9, 16). This course was extremely popular when it was taught in 1992. We will soon begin planning short courses for 1995. We plan to include a business management course. Do you have any other suggestions of topics you'd like to see covered? If so, call me at 831-2531. These classes are for you. We want to make them relevant to the work you do and the information you need to receive.

The annual Delaware/Pennsylvania Garden Center Bus Tour was a big success. We visited four unique garden centers in New Jersey. If you have a garden center or are thinking about starting one, I recommend this tour next year. It is a great opportunity to learn from your peers. I am attending the GCA garden center tour in Seattle this year. I will be taking slides to put together a slide set that GCA will sell. Hopefully, I'll get lots of good ideas to bring back to Delaware.

You should have received a flyer about the Ornamentals Research Expo, scheduled for September 13th from 4 to 8 PM. Don't miss this great opportunity to see what's happening at the university. We have planting technique

study results to report, wildflowers sod demonstration plots to see, a dogwood cultural study in progress and much more. The evening includes a picnic dinner and free plant give-away. See you on the 13th!

Jo Mercer and I held two wildflower sod focus groups this summer. We got a lot of information and are in the process of transcribing the tapes. We will pass on what we learned to you this fall. We hope this technique holds promise for learning how people respond to a new horticultural product.

In another month or so we will be wrapping up another successful year of *Ornamentals Hotline*. Let me know how this publication works for you. Is it timely? Does it include the pests you see in the landscapes you manage?

The Delaware/Maryland Ornamental and Turf Workshop will be held once again in December at the Sheraton, in Dover. We are in the process of preparing a program and selecting a date. Look for flyers in late October.

I am rerunning the following paragraph because I really need information about what kind of training would work well for you. Please fax, call or send me your comments.

I am interested in conducting a regional IPM Scout training workshop in 1995. It might be held for one week in the summer and designed to train IPM scouts to identify insect pests, disease symptoms, beneficial insects and other plant problems. The impediment to launching full-scale landscape and nursery IPM programs is the lack of trained scouts. We'd like to rectify that problem but we need the full support of the industry with a commitment to send people to this workshop. Let me know if you like this idea and what format would work best for you and your employees. Call me at 831-2531.

PLANTS FOR AMERICA: GARDEN COUNCIL PROMOTION ORDER UPDATE

Editor's Note: The following is information provided by the Plants for America Garden Council to explain the proposed promotion order and help you make an educated decision about its usefulness to the industry. The D.A.N. would like to know how its membership feels about this proposal. Read this, think about it, and respond to a survey we will send this fall. The D.A.N. will then be prepared to take a stand based on the opinions of its membership.

The Garden Council has been researching the effectiveness and feasibility of a promotion order for the horticultural industry. Initial research has shown that a promotion order is not only feasible, but could greatly benefit the industry. A world-class promotional campaign will grow the market, solidify prices and showcase the positive environmental attributes of our products. While full details of how such an order would be structured have not yet been determined, following is a recap of what is known to date.

Our 1994 work program includes gathering quantitative and qualitative data from the industry and the ultimate consumer to fully develop a viable agenda. We must then educate the industry, solicit feedback and finally, implement a scientific survey to determine actual levels of support.

What is a Promotion Order?

A promotion order is federal legislation created by request from an agricultural commodity group. It is designed to allow an agricultural commodity group to fund and implement marketing efforts for its commodity. Congress provided the framework for this approach under the 1990 farm bill.

Promotion orders are established to promote the product to maintain or increase market size. They differ from marketing orders in that marketing orders tend to control certain aspects of the market such as price.

Why is a Promotion Order Necessary Now?

Like all businesses today, those of us in the gardening industry are struggling to maximize profits in a weak economy. However, unlike industries such as beef and pork that have many negative obstacles to overcome, gardening has a positive story to tell. While gardening will prosper in the short term because it is "politically correct," it has the potential to explode and last well beyond the aging of the baby boomers. National advertising is the single best opportunity for an advertiser to gain market share. Now is the best time for our industry to maximize its position in the market place.

How Will the Promotion Order Work?

Each grower contributes 0.4% (less than one-half of one percent) of his sales directly to the industry commission. The funds are managed by an industry board nominated by the industry and chosen by the Secretary of Agriculture.

Our analysis has shown that many industry boards collect from large numbers of participants while keeping overhead costs low (administrative costs of no more than 5%). The Beef Council collects from more than 1.2 million contributors; the Cotton Commission from 20,000; the Potato Council from 8,000. As we have approximately 10,000 growers and plan to have a minimum sales level, we are confident we can establish collection systems which mirror other councils in efficiency and results.

What Will the Promotion Order Do?

A promotion order will give our industry momentum to create a dynamic vehicle to communicate our positive health, economic, and environmental messages. It will allow for the development of an industry symbol that will add value and represent a high standard of quality, in-turn supporting higher prices.

We will be able to take advantage of trends like convenience that can attract new 90s users who think they are too busy. Perhaps most importantly, we will create a demand for products and services of the lawn and garden industry, making them a necessity in our lives.

Who Will Benefit?

"Plants for America" will benefit growers of all sizes. By pooling funds a prestigious national campaign can be created that no single grower could ever afford. A consistent national message, bolstered by on-going market analysis, will ensure desired results. The benefits will increase national consumer awareness, increase sales and increase opportunities for co-op programs.

How Does the Federal Legislation Work?

The legislative process can take two or more years. Congress must be shown that there is broad support from the industry members that would be participating. During that process, the industry works toward obtaining congressional sponsors and then creation of the legislation.

The federal legislation promotion of the effort simply gives the industry an equitable collection vehicle. Most successful programs today do not allow for refunds and mandate a delayed referendum (by those paying into the program) at a point no later than 36 months after legislation has passed.

Will the Government Be Controlling Our Activities and Auditing Our Business?

We have contacted all of the agricultural commissioners who are currently involved in promotion orders and the feedback has been most encouraging. The USDA is only concerned that the dollars raised are used to truly promote the intended industry and that there are no special interests usurping the funds.

The government will not be involved in the day-to-day activities of Plants for America. The industry nominates the Plants for America Board and the Secretary of Agriculture reviews the selections. USDA reviews the annual budget and commission books to ensure that monies are being spent to promote the industry.

All company names and financial contributions remain confidential and are not shared with the Plants for America Board. The government can only audit sales and check-off contributions.

What Will Be the Level of Funding?

In order to reach 85% of our target audience, we will need to budget \$20-22 million. We will need another \$1-3 million for regional tie-ins. We will utilize world-class creative talent to develop a national strategy, theme and consumer program.

The implementation of our plan includes the development of regional and local product ties which will mirror the diversity of our industry. We will also develop specific promotional ties with local retailers throughout the country.

In an effort to pass the Plants for America promotion order, it is estimated that it will cost approximately \$400,000 per year for two years. Major expenditures are for industry education, the legal work involved in writing legislation and working with Congress and the market research and creative efforts required for a world-class advertising and public relations campaign.

How Long Will it Take for an Order to Pass?

If the industry supports a promotion order and a bill could be introduced in Congress by the end of 1994, it could pass by the Spring of 1995. Funds would be collected in late 1995 and advertising could start as early as the spring of 1996.

Are Hard Good Manufacturers and Distributors Going to Contribute to the Project?

Since this program is under the jurisdiction of the USDA, there is no mechanism available for funding except for "crops." Therefore hardlines will not be included at this time. We hope that, once we are engaged in a national campaign, there will be many chances to tie in with hardlines manufacturers and distributors.

What Would Happen if the Industry did not Vote for the Referendum?

Ten percent of all money collected will be held in escrow. If the referendum does not pass, this money will be used to refund a portion of collected funds. (If the referendum does pass, this money can be used to support marketing efforts or to refund some of the seed money contributed.)

Conclusion

Plants for America is the single most significant marketing event to happen to the Lawn & Garden industry in the 20th century. It will do the following:

- Create a life long habit for younger homeowners,
- Take advantage of growing trends,
- Exploit untapped demand,
- Grow a generation of new users,
- Create awareness of an industry, build on positive environmental attributes,

- Create a legacy for the industry.

We can expect growth of our industry to exceed recent historical trends and improve our demand/supply equation, thus firming prices.

ESTATE PLANNING IDEAS FOR FAMILY OWNED BUSINESS

**Chip Jamerson,
Legg Mason Investment Executive,
Lynchburg, VA.**

For a family owned business, there are three main concerns in Estate Planning:

- A. Who will take over the business if you die?

Successor management planning is imperative.

- B. Who should inherit your business?

Immediate written resolution of this issue is critical.

- C. How will the IRS value your company?

The final value of the business for estate tax purposes is subject to IRS determination.

Estate liquidity must be available to avoid liquidation of the business to settle estate tax.

Strategies

Look into the possibility of a **Section 303 redemption** - it allows the company to buy back stock from your estate without the risk of the distribution being treated as a dividend for income tax purposes. *The value of your holdings must exceed 35% of the adjusted gross estate.

Consider the **Estate Tax Deferral** as a possibility - if closely held business interests exceed 35% of

the adjusted gross, you may qualify for a tax deferral up to 15 years.

The **Buy-Sell Agreement** - provides a ready market for the shares of the business should the owner's estate wish to sell the stock after the owner's death. It sets a price for the shares and can fix the value for estate tax purposes. It avoids unnecessary disagreements caused by unwanted new shareholders.

Gifting the Family Business would be another option. This might be done by recapitalizing a preferred stock interest and gifting the common stock to beneficiaries. This would allow you to retain control of the company and "freeze" the stock value for estate tax purposes. All future appreciation affects only the common shares, not the owner's preferred stock.

These ideas are representative for the many aspects of estate planning which should be considered by a business owner. Consult with your accountant, your attorney, and your financial advisor to determine which strategies work best for your situation.

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LANDSCAPE CONTRACTOR'S VIEWPOINT ON BRADFORD PEAR

Andrew Sparks, ASLA

Help your customers understand the difference between the beneficial, hard-working landscapers (like bees) and those unprofessional landscapers, nurserymen and designers (like wasps and yellow jackets) by whom your potential customers have been stung. Always stay ahead of the game. Stay informed, implement the best new techniques and plant varieties and help us be a less feared, more revered industry. The less informed, less responsible look-alike will have to settle for less stinging opportunities or bring themselves up to your level of respect.

"Bradford" was on the verge of becoming a household name and a generic term for all *Pyrus calleryana* types, much like Kleenex and Posi-traction have been for decades. Now, however with the discovery that was inevitable about the tree's liabilities, all pears are going to be (and are indeed becoming) suspect regarding the strength of their trunks and scaffold branches.

I first became aware of the issue ten to twelve years ago, and haven't specified a "Bradford" pear since. Some others who have been aware for as long have also stopped. Recently, I was providing information about alternatives to using "Bradford" pear where many had been recommended for a planting along the lake shore. I discovered at this meeting that there were some "authorities" out there who still consider it to be among the best trees, for any location. I sympathize with those nurserymen who no longer line them out, but have many in their nursery to get rid of. If the growers did a good job pruning them so they have a central leader, they have a pretty good tree to sell. If not, they should be culled out (discarded) or sold on a job that has a pre-determined short life span (10-15 years). At this meeting, I was stunned to have someone in

attendance give me the names of a registered landscape architect, a landscaper and a nurseryman, all three of whom had recommended this tree for a very harsh, windy, urban lake-front landscape. These people are not professional in my mind because they are not staying current in matters in which they are relied upon for advice, and they are not protecting the public health, safety, and welfare. Simple as that. If you want to call yourself a landscape "professional", you must be willing to do those two things. These trees are not "safe" in parking lots, or near buildings or pedestrian ways, or along streets due to potential damage to cars and wires. They hurt the welfare of the public by being an economic liability long before a good tree would be. If you have continued to use this particular pear after hearing about the "breakage" problem, you owe your customers at least a pruning, if not a clean-up and removal when the tree fails.

If we don't watch out, all flowering pears will be shunned by the public due to bad publicity because we continue to force "Bradford" down their throats. A similar thing happened with flowering crabapple ten or fifteen years ago when nurserymen and landscapers insisted on continuing to grow and use trees with large fruits that fell early or trees very susceptible to disease, when cultivars had long been available that had small persistent fruit and were disease resistant.

I strongly believe in planting for the future. A tree is a legacy to future generations. Current research indicates "Aristocrat" (broad), "Chanticleer" (narrow upright), and "Trinity" (small, round) are callery pears that will be just that. "Bradford" will not be - just don't do it.

Excerpted from *VNA Newsletter*, May/June 1994, where it was reprinted from Ohio's *ONLA Landscape Contractor's Viewpoint*

PLANNING A PROMOTION

**Susan Barton,
Extension Specialist
University of Delaware**

Promotions can be divided into two categories - single event and ongoing promotions. Single-event promotions could be festivals, Easter egg hunts, perennials tours, Halloween costume contests, and sand sculpture contests. Ongoing promotions can be tulip cards (redeemable in fall), August Dog Days (50 percent off dogwoods with photo of dog) Father's Day free planting, perennial-of-the-week, and Friday happy hours. The possibilities are endless.

Although sales promotions can be widely diverse, they share three characteristics: *communication* - gain attention and provide information; *incentive* - some concession, inducement or contribution that gives value to the customer; and *invitation* - a distinct request asking customers to buy or visit now.

When designing a promotion be sure to meet a specific objective. Your primary objective is to draw people into the store. But promotions also serve to increase customer base, boost sales per customer and enhance the company's image.

To increase customer base, conduct events such as plant shows, harvest festivals and open houses with refreshments and prizes. Think about providing activities for children to draw the parents in as well.

To increase sales per customer, concentrate on rewarding regular customers. Offer discounts on selected items, a gift certificate after a set volume is purchased, bulb cards to be redeemed in the fall, or a free potting service for "special" customers. Customer loyalty is worth the ongoing effort, because satisfied customers buy again, talk favorably about the business to others,

pay less attention to competitors, and are the first to try new products.

To enhance the company's image, display the garden center's best products in the form of plant shows or competitions. Tours for school children, charitable donations and other special events can generate positive publicity. News stories about the garden center seems more authentic and credible than advertisements, because the message is perceived as news rather than as sales-directed communication.

Promotions succeed when they are fun for everyone, including owners, employees and customers. Design promotions to appeal to your market. Wagon rides work well for a harvest festival in a young community, but not for a market comprised of senior citizens. Plan promotions by developing a check-off list of tasks. Clean up the garden center and display the best possible products for single-event promotions. Be ready with staff, supplies and merchandise. The first weekend of the month (after payday) is best for a single-event promotion. Avoid time-delay promotions during the spring when turnover is crucial. Publicize the promotion at least one month in advance. *Skipping this step is like forgetting to invite guests to a party.*

Evaluate the promotion right away based on your desired goal, and take notes to begin planning for the next one. It is a mistake to evaluate promotions by only the sales volume of the day. If your goal is to attract new buyers, your reward will be repeat business from customers in the weeks and months to come.

This article was provided by the American Association of Nurserymen and its grower, retail, and landscape divisions, in partnership with your state association. For more information on AAN, call 202/789-2900; fax 202/789-1893.

THE ART OF NETWORKING **It's more than an attitude, it's a technique.**

Jim Huston
Landscape Consultant

The landscape and irrigation business is more complex and stressful than ever. With regulations bombarding the industry and competition getting more fierce, we are seeing profit margins get razor slim as companies fight to gain or maintain their part of the market share.

During these times, mistakes need to be minimized while opportunity must be explored for the purpose of maximizing productivity and gaining an edge on the competition.

Creative networking can help you get a "leg up" on your competitors. If approached properly, it can provide you with new methods, systems, and strategies to research and develop for your business. Everett Rogers captured the essence behind the power of networking in his book *Diffusion of Innovations*. He theorized that most individuals latch onto an innovative idea once it is conveyed to them by peers who have previously adopted the innovation, rather than from scientific data.

People generally make decisions when "influenced" by others. Networking can help you gather information and develop relationships that will assist you and your staff in meeting corporate goals and budgets and in improving the bottom line.

I recommend that you develop a networking strategy that includes, at a minimum, the following:

- Finance, insurances, bonding
- Marketing, customer retention and relations
- Personal computers and software

- Management, management systems, and corporate structure
- Training and acquiring/improving skill levels of everyone
- Leadership - everyone learning how to be a better head coach and influencer of people

Strategies for Creative Networking.

Networking is more an attitude than a technique or set of rules. It is the fulfilling of the desire to explore and to experiment in your quest for new ideas in order to improve the organization, to invigorate people, and to make your company a fun and exciting place to work. Here are some steps to take to get you started in your quest for new ideas.

1. Identify and write down your five most important goals and your five biggest challenges for the year, quarter, and month. Then identify the habits that you either have to establish or break and the items you need to follow-through on.
2. Ask yourself and write out answers to these questions.
 - What does the company need to improve and what can be done to energize it?
 - What management skills and/or experience(s) do your staff/employees need to improve their productivity and to challenge them? Identify individual as well as group needs.
 - What skills and/or experience(s) do you need to improve your productivity and to challenge you?

Once you have finished steps one and two, then develop a strategy for networking. Here are some specific ideas to pursue.

1. Develop a vision by identifying successful people and companies.

- Visit them and tour their facilities.
- Take pictures. Videotape an interview if possible.
- Carry a microcassette recorder with you everywhere you go to capture new ideas especially during these visits.
- Take lots of notes and ask lots of questions.

2. Use the telephone. It can be your biggest asset for networking. Call associations, peers, suppliers, anybody who can help you gather information and resources about your target areas and topics. Identify specific bankers, banks, bonding and insurance agents, tax and accounting specialists, CPA's, payroll services, operations specialists for equipment and materials issues, lawyers and paralegals for legal matters; etc.

3. Develop a board of advisors of 3-5 people who judgement you respect and who will hold you accountable to your goals. Give them a copy of your budgets and business plan. Companies just starting out can even do this. Meet with your advisors either as a group or separately at least once a year. Choose advisors that you will feel free to call on and network with as the need arises. Pay them for their time or trade services with them. This will keep the relationships on a professional level.

4. Enter your notes and the names of individuals, companies, associations, trade shows, etc. into a computer (preferably notebook type) database.

5. Identify junior colleges, continuing education programs, seminars, and training specialists that provide one-day as well as semester-long courses for computer, management, and technical training. Get on their mailing lists.

6. Promote intra-company networking by having office staff work in the field and vice versa. Eyes WILL open.

7. Identify mentors and heroes for everyone in your company. If one picture is worth a thousand words, one model is worth ten thousand pictures. Spend time with your mentors and heroes. Chauffeur them around in order to spend time with them if need be.

8. Attend meetings like the Management Clinic or Nursery Management Institute that are specially designed for networking and brainstorming with noncompetitive members of your industry.

9. Keep adding to your network/resource list and have your key staff participate in it. Publish it for your employees benefit.

Benefits of Networking. If done properly, creative networking can invigorate your company, create new vision in you and your staff, and develop a team spirit in your organization. With clear-cut goals and objective operational targets, networking can and should improve your bottom line while helping you face your most fierce competitor - yourself.

This article was provided by the American Association of Nurserymen and its grower, retail, and landscape divisions, in partnership with your state association. For more information on AAN, call 202/789-2900; fax 202/789-1893.

Editor's Note: Look for a talk entitled "Networking with Your Competitors" at the Delaware Turfgrass Conference in October at Hockessin Memorial Hall.

FINALE - A NEW POSTEMERGENCE NONSELECTIVE HERBICIDE

**Jeffrey F. Derr, Weed Scientist
Virginia Polytechnic Institute**

Glufosinate, marketed under the trade name Finale, is now registered for use in nursery production and landscape maintenance, and for noncrop weed control. Finale is nonselective, meaning that it will injure or control most plants. Finale controls both annual and perennial weeds, but thorough coverage of weed foliage is needed for optimum results. Chemically it is similar to glyphosate (Roundup), but there are some differences between these two nonselective herbicides.

Finale is faster acting than Roundup, with results seen within a week, compared to about two weeks for Roundup. Finale has limited systemic action, so it is not as effective on certain perennial weeds as Roundup. For example, Finale has not been as effective as Roundup for bermudagrass or buckhorn plantain control in my studies. The activity of Finale could be thought of as between that of paraquat (Gramoxone Extra) and Roundup. Finale is slower acting than the contact herbicide paraquat, but faster acting than Roundup. Finale is more effective on perennials than paraquat, but Roundup is more effective on certain perennials than Finale.

Finale will be used in a manner similar to Roundup, as a directed or shielded spray around ornamentals. Do not allow spray to contact desired foliage. One advantage of Finale over Roundup is that Finale is less likely to cause systemic damage if suckers are sprayed. However, do not contact green or thin bark with finale, as it, like Roundup, can injure the bark of young trees. Finale, like Roundup, is inactivated upon contact with soil, so it has no soil residual. Combine Finale with a preemergence herbicide

for both preemergence and postemergence weed control.

In my research, Finale has provided excellent control of such weeds as common ragweed, white clover, annual ryegrass, common chickweed and henbit. Although Roundup may be more effective on some weeds, certain weeds, like cutleaf evening primrose, appear to be more sensitive to Finale than Roundup.

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NURSERY PRODUCTION OF TREES IN CONTAINERS

Stanton Gill
Regional Specialist
Maryland Cooperative Extension

The number of Nurserymen growing trees in plastic containers is increasing. There is good reason in that nursery production of trees in containers offers a number of production, marketing, and establishment advantages compared to field grown plants. Container grown trees can be marketed at times of the year when field grown trees cannot be practically harvested and survive. Reduced weight of the rootball of container grown plants compared to field grown trees is another major advantage in handling and shipping cost.

Growing trees in containers does present problems not necessarily experienced with field grown trees. In containers, the root system is easily damaged by extremely high or low temperatures. The root system of trees is not as hardy as the rest of above ground parts of the plant. Root systems of trees growing in the ground are insulated by the surrounding soil and not subjected to large fluctuations in root zone temperatures.

Another disadvantage is that winds will easily knock over trees in containers. The time spent setting up trees is both bothersome and adds to the expense of producing the trees. Some nurserymen have dealt with this problem by driving metal or wooden stakes through the container into the soil below the container. This makes it difficult to move trees to reorganize your growing area as plants are sold.

The third disadvantage of growing trees in containers is that once the tree root system fills the container the roots circle the pot. Tree roots that circle during nursery production have the potential to enlarge and become girdling roots that may stress or kill the trees. These girdling roots generally form after the tree is transplanted into the landscape.

Fortunately, as these problems have been identified, solutions have been developed. A nursery producer should thoroughly investigate each growing method evaluating the advantages and disadvantages before adopting one. The following will outline one growing method for growing containerized trees.

Pot-in-pot:

The pot-in pot method of tree production was developed by practical-thinking nurserymen to solve the dual problem of protecting the root system from extreme temperatures and preventing tree blow over. An outer or sleeve pot is sunk into the ground, and a second pot, the actual production pot that is harvested with the tree, is inserted within and rests upon the lip of the sleeve pot. The outer sleeve pot can have smooth sides but the actual production pot must have either vertical ribs or be copper coated to reduce circling roots from forming.

Advantages:

The pot-in-pot system of tree production provides the needed protection of the root system from extreme high and low temperature extremes during the growing season. Using this growing system, with the container lip just above soil grade, the tree is very stable and less prone to being blown over.

When the nurseryman is ready to harvest the tree, the growing pot is easily pulled from the first pot that remains in the ground. The small amount of dirt that might be present on the plant pot that is to be marketed can easily be rinsed off. A new tree can be potted up in the same size container and placed in the empty sleeve pot that remains in the ground.

It is important to install a trickle irrigation system when growing trees with the pot-in-pot method. Trickle irrigation offers the most efficient means of keeping the root system from drying out. In heavy clay loam, you will need to monitor how fast the excess runoff water percolates away from the sleeve pot. If the soil percolates slowly you will need to adjust your trickle irrigation system to place water slowly enough to allow the excess water to drain away. If you are producing trees in pot-in-pot in sandy soils, drainage from the sleeve pot should be less of a problem.

Disadvantages:

In the first year of growing trees in a container there are relatively few problems with a well designed pot-in-pot system. This assumes that there is adequate container size, use of a well drained growing media, and a monitored irrigation schedule. In the second season, vigorously growing trees such as birch, ornamental pears, maples, and sycamores will often send out roots through the drainage holes of the growing pot. These roots will penetrate through the drainage holes of the sleeve pot, anchoring the tree into the ground. To remove the tree the sleeve container must be dug out of

the ground and the anchoring root system severed. This negates the easy tree removal aspect of the pot-in-pot growing system.

Solution one:

This problem is dealt with in a variety of ways. One method is to pull the growing container from the sleeve pot and examine for roots exploring through the drain holes. These roots can be pruned and the pot placed back in the sleeve pot. For vigorously growing trees, this inspection should be done several times during the growing season.

Solution two:

Another method involves placing a porous weed barrier cloth disc in the bottom of the sleeve pot, covering the drainage openings. Roots that grow through the drainage holes of the growing pot will be impeded from penetrating the drainage holes of the sleeve pot and anchoring into the ground. The growing pot is easy to remove but you will still need to prune off the roots that are growing through the drainage holes of the growing pot before retailing the tree.

Solution three:

A porous-walled growing container with pin-hole perforations randomly punctuating the container wall offers a possible solution. Instead of having large drainage holes of .5 inch or greater as is commonly found with most growing containers, this growing container has hundreds of small, pin-hole sized openings on the side walls and bottom of the pot. This pot design provides the necessary drainage but only allows small roots to penetrate through the holes. If the root increases to a diameter greater than the pin-hole, the root is girdled off. This also has the effect of causing the root system to branch and not circle the pot. The price of these porous-walled containers is higher than standard containers but the cost may be offset by reduced labor costs for hand pruning off exploring roots that penetrate drainage holes.

Reprinted from *Free State Nursery News*, May 1994.

NEEM OIL LOCKS OUT SPORES

Hank Becker, ARS

Oil extracted from neem seeds covers plant leaves like a raincoat, stopping fungi that cause disease such as powdery mildew and rust from infecting plants. Fungal spores are spread by wind and splashing raindrops. "If the spores can't adhere to a leaf, germinate, and penetrate the leaf cells, they can't cause disease," says Jim Locke, an ARS research plant pathologist.

Neem, or margosa, trees are native to India and Burma. They are related to mahogany, require a frost-free climate, and will grow in West Africa, the Caribbean, Australia, southern Florida, several south-western states, and Hawaii.

Almost all parts of the versatile plant contain extractable compounds that have been used for centuries in India in personal hygiene products like soap and toothpaste. Seed extract has been used to treat skin diseases, sores, and rheumatism.

Locke says that in numerous tests, a spray of 1-percent neem oil in water "stopped 95 to 100 percent of the powdery mildew on hydrangeas, lilacs, and phlox." A single spray application was sufficient to protect these ornamentals from infection. Repeated applications at 7 - to 14-day intervals as the plants grew provided disease protection without any plant damage. On plants where mildew had begun to develop, "it was arrested," he says, "providing control comparable to each of three chemical fungicides."

Powdery mildew, which also attacks crepe myrtles and roses, causes leaves to turn white. Preliminary results indicate the oil will arrest and control the fungus that plagues these popular ornamentals, especially in humid areas.

Locke says the oil is the first botanical product to exhibit fungicidal properties. He has been field-testing it for the past 4 years on several greenhouse and nursery crops. "We're working now to discover how the neem oil protects the plant from infection," says Locke. Two of the possibilities are that the spores fail to germinate or are unable to penetrate the leaf. One study involves numerous laboratory tests of roses by Locke's group in the Floral and Nursery Plants Research Unit at the agency's U.S. National Arboretum, Washington, D.C. He says the oil "seems to delay infection by black spot - the number-one disease of roses. As a result, rose bushes lose fewer leaves, compared to untreated, diseased plants."

Locke says this research, begun in cooperation with former ARS entomologist Hiram Larew, also demonstrated that neem oil can reduce damage caused by various pests, including spider mites. "In preliminary tests, a 2-percent spray of neem seed oil applied directly to spider mite eggs resulted in an 87-percent mortality," he says.

Research at USDA on plant-derived natural pesticides, such as nicotine, dates back to the 1920's. Beginning in 1975, extraction products from neem seeds were evaluated for their insect-killing properties. In 1987, ARS researchers demonstrated the systemic activity of a neem seed extract containing azadirachtin against leafmining flies. Larvae that fed on plants grown in azadirachtin-treated soil rarely survived to adulthood. Azadirachtin-based insecticides became the first neem product to be approved by the U.S. Environmental Protection Agency. Locke says the botanical insecticides, Margosan-O and BioNeem, contain azadirachtin. Unlike neem oil, they have no fungicidal activity.

Under a cooperative research and development agreement with W.R. Grace and Company, Columbia, Maryland, Locke is testing the oil as a

fungicide that may be available commercially later this year.

Reprinted from *Agricultural Research*, June 1994.

FRIENDLY FLIER Gypsy Moth Biocontrol Readied

Marcia Wood, ARS

A friendly fly imported from forests in Korea and Germany may soon help protect America's trees and shrubs from one of their worst insect enemies - gypsy moth. ARS scientists expect the fuzzy, half-inch-long *Blepharipa schineri* fly to soon join the ranks of other beneficial insects brought into the United States to combat the destructive gypsy moth. Black with brown eyes and faintly reddish bands on its sides, the fly is harmless to humans.

Gypsy moths infest parks, woodlands, and backyards in 16 northeastern states. In spring and summer, they feed on foliage of hundreds of different kinds of trees and other greenery. Many defoliated trees weaken and die.

A parasite of the gypsy moth, the *B. schineri* fly kills unlucky gypsy moth caterpillars that accidentally eat fly eggs while munching on leaves. A gray-black speck about the size of a thumbtack point, the fly egg hatches inside the caterpillar's stomach. The transparent *B. schineri* maggot that emerges will later poke holes in the caterpillar's gut, then wriggle its way to the nerve cord that runs the length of the body. While the gypsy moth caterpillar transforms into a pupa - a pre-moth that slumbers in a silky, loosely woven cradle - the *B. schineri* maggot feeds on the host's innards, slowly killing it. In early summer, the fully grown maggot cuts a slit in the now empty pupal shell, then falls to the ground. Within a final layer of hardening skin, the maggot also forms a pupa. The skin becomes a home, or

puparium, until the next spring, when the insect makes its amusing debut as a fly.

"A fly that has just climbed out of its puparium looks as if it has a tiny balloon on its head. Actually, it's an inflatable chamber. The fly fills it with blood, forcing the puparium to crack open so the fly can escape."

After mating, the female *B. schineri* fly lays her eggs on leaves that gypsy moth caterpillars have begun to browse. Female gypsy moth caterpillars are 1 1/2 to 15 times more likely to eat the eggs - and be killed by the parasite - than males. It's a matter of exposure: Females remain caterpillars for about a week longer than their male counterparts. Males skip this extra step, or instar, and may already be sheltered in their pupal cradles while females are still feeding.

Hungry *B. schineri* maggots can't stop ravenous caterpillars from defoliating trees and shrubs. But the flies can lessen the following year's gypsy moth generation by killing pupae. Parasitized pupae will never become fertile, egg-laying moths.

Tomorrow's first supplies of the *B. schineri* flies for American forests may come from an insect nursery, or insectary, at the ARS Beneficial Insects Introduction Research Unit in Newark, Delaware. Entomologist Roger W. Fuester and coworkers nurture the *B. schineri* that exit from some 1,000 parasitized gypsy moth caterpillars. The caterpillars were painstakingly harvested from forests near Seoul, Korea, by Robert W. Pemberton and colleague Jang-Hoon Lee. Both were with the ARS Asian Parasite Laboratory in Korea. They picked the caterpillars from more than a half-dozen different kinds of trees, including birch, larch, poplar, cherry, and oak.

In Korea, says Pemberton, gypsy moth populations seldom burgeon, thanks to *B. schineri*, a phalanx of other gypsy moth parasites, and a natural virus that slays the moth. *B.*

schineri is the third most successful insect parasite of Korea's gypsy moths, according to an exacting, 5-year study by Pemberton, Lee, and co-investigators David K. Reed, Robert W. Carlson, and Ho-Yeon Han.

The two top-ranked parasites in their study - the *Cotesia melanoscelus* wasp and the *Parasetigena silvestris* fly - already live in the United States. They were imported in the early 1900's to battle the gypsy moth.

The rankings results from the researchers' post-mortem survey of more than 50,000 parasitized gypsy moth caterpillars and pupae. The three leading parasites were the most numerous of those that came out of caterpillars brought indoors and raised by the researchers and their co-workers at the Seoul laboratory. The study - one of the most extensive investigations ever conducted of gypsy moth's natural enemies - confirmed the importance of the *Cotesia* wasp and *Parasetigena* fly.

Besides husbanding the Korean flies furnished by Pemberton and Lee, Fuester and colleagues safeguard *B. schineri* that live inside gypsy moth pupae collected in Europe. Research entomologist Franck Hérard found the pupae on oak trees in Germany. He works at the ARS European Biological Control Laboratory in Montpellier, France.

Raising Flies for 60 Million Acres

At Newark, researchers refine the complex process of raising new generations of healthy flies. When the insect gains federal and state approvals, says Fuester, lab-reared *B. schineri* may be set free in the woods to help keep gypsy moth in check. That might happen as early as 1995.

That would be good news for homeowners and others in the East, where the moth is established

over some 60 million acres. What's more, the fly might aid other states where the moth has spread. And it may also prove a welcome warrior in states newly threatened by the European gypsy moth's "evil twin," the Asian gypsy moth.

B. schineri's homelands cover an enormous expanse - Europe through Asia - where it is an effective natural enemy of both the European and Asian gypsy moths. That's particularly important to Pacific Northwest states, where the Asian gypsy moth has been an occasional and unwelcome visitor. Hitchhiking on ships, the moth has jumped ashore at port cities such as Tacoma, Washington, and Portland, Oregon, prompting emergency efforts by ag officials to thwart infestations.

What might happen if *B. schineri* is set free in the United States?

"Chances are you wouldn't even notice the new fly," predicts Fuester. *B. schineri* flies are unobtrusive. They live quiet lives, sipping nectar, mating, and laying eggs. If you're out fishing or hiking in the woods, they may land gently on you. But they won't sting or bite. they buzz, but it's not a loud buzz, so it isn't annoying.

The fly's best use, says Fuester, may be to quell pockets of gypsy moth infestations, before they become outbreaks. And the kills scored by *B. schineri* should complement the efforts of other biocontrols, including a relative - the *B. pratensis* fly - and a virus.

A U.S. resident since 1907, *B. pratensis* is one of more than 50 insects brought here during the past eight decades by entomologists seeking to squelch gypsy moth by natural means. Recently, however, researchers from New Jersey, Pennsylvania, and New York have noted a worrisome trend: *B. pratensis* is losing its edge. Fuester hopes that *B. schineri* will compensate for its cousin's decline.

No one expects *B. schineri* - or any single gypsy moth parasite - to suddenly become the overnight hero that clobbers the moth was. But *B. schineri* may prove a valuable new player on the American biocontrol

Reprinted from *Agricultural Research*, August, 1994.

PEST MANAGEMENT IN THE OFF SEASON

Rayanne D. Lehman
Pennsylvania Department of Agriculture

Wouldn't it be great if all your pest problems arose when you expected them - or even better, when you had time to deal with them? But everyone knows that most insect, disease, and weed problems need attention during the growing season. Spring can be an especially frustrating season when fields are slow to dry out, planting must be done, and every pest imaginable seems to appear at the same time.

Many nursery and landscape managers are reluctant to free up a person to perform regular pest scouting during their busy season. Instead, they fall back on the calendar method and spray at the same time each year, or even resort to regular cover sprays. This difficulty in scheduling timely pest scouting may be one of the major reasons many operations are reluctant to adopt integrated pest management (IPM).

Some relief from this dilemma may be possible by scheduling some off-season scouting. Unlike the winter of 1994, most years permit periodic access to plant material throughout the late fall and winter. Some troublesome ornamental pests are effectively scouted during this period, when most nurseries and landscape maintenance people traditionally are in their "off season."

By taking advantage of the lack of leaves on deciduous trees, a scout can detect some pests that are typically obscured during the growing season. Try looking for overwintering scales on deciduous trees before leaves are present. White peach scale, calico scale, cottony maple scale, and European fruit lecanium are just some of the scale insects that overwinter on twigs and are easier to see without leaves being present.

Honeylocust spider mites overwinter as bright red adults on the trunk and branches of their hosts. Large congregations of these adults are easy to spot at short distances from the trees, especially after leaves have dropped. Egg mass surveys for gypsy moth are best done after leaves have dropped from hardwoods.

Some pests have overwintering stages that may be easier to see than the active forms. For instance, the bright red overwintering eggs of the southern red mite are easy to see on the underside of holly leaves during winter. Late winter is a great time of the year to detect symptoms of rhabdochline needlecast of Douglas fir. The characteristic red-brown blotches that develop on last year's needles are obvious at this time of year, allowing you ample time to cut out a few trees or prepare for applications of preventive sprays.

Off-season scouting can even be useful in black vine weevil management, especially if there are low pest populations. By examining a large percentage of plants in a given block you will be able to detect a localized infestation before this pest has time to spread. Although you won't see any individuals, leaf notches created by feeding adults is a strong signal to plan additional monitoring for emerging adults in late spring.

In addition to the detection that can be accomplished, fall and winter are good times to employ some mechanical and cultural methods to reduce pest populations. For instance, tent caterpillar egg masses are easy to detect in winter. On smaller trees, pruning out egg-infested branches will prevent spring damage. Overwintering eggs of European pine sawfly are more difficult to find. But by closely examining susceptible hard pines, oval yellow spots on the needles can be seen. These are the oviposition sites, and needles containing eggs can be removed before the voracious larvae appear in spring. Although fireblight symptoms are easiest to detect in spring, winter pruning of dead wood

is a significant part of managing this common disease.

Not all pests are easy to detect during fall and winter, particularly those that overwinter in the duff or soil under deciduous hosts. Twospotted spider mite, for instance, is consistently a serious pest of winged euonymus. Most overwintering females, however, are in the duff, not on the plant. Because the damage also disappears with leafdrop, detection of twospotted spider mite is virtually impossible during late fall and winter. Birch leafminer and hawthorn lace bug are just two common insects that would also fall into this category. For pests of this nature, managers must rely on records from previous years and main-season scouting to plan control strategies.

Scouts must develop their own plan for the off season, similar to that for monitoring pests in the growing season. Start by preparing a list of pests that have been problems in the past and thinking about those that can be detected in fall or winter. Can any of the pests be managed by off-season mechanical or cultural control? Are there any other pests you should be looking for during this time of the year?

Off-season scouting will never replace pest monitoring during the growing season. But by pinpointing pest hotspots in the off season, you can decrease the time needed to monitor your populations effectively during your busy period. Could this be the edge you need to adopt IPM in your operation?

Reprinted from *Regulatory Horticulture*, Spring 1994, Vol. 20.

PESTICIDE NEWS

Insecticides:

AZINPHOS M 2EC (azinphos-methyl) - Gowen - Added to their label the usage on Christmas trees and southern pine seed orchards.

D.A.N. 6000 (diazinon) - Ciba - A new formulation being used to control various insects around the home.

ETHION-FMC - Deleted ornamental turf and plants greenhouse non food crops and domestic outdoor uses effective 9-13-94.

MERIT (imidacloprid) - Miles Inc. - EPA approved the application to conditionally register this new active ingredient, as a .62% granules for use in ornamentals, a 25% granule for use in ornamental crops, a 2EC for use on turf and ornamentals, a 75 wp for use on turf landscape ornamentals and interiorscapes as well as a 75 WSP for the same usages.

MOCAP (ethoprophos) - Rhone Poulenc - Deleted from label, use on sod farms.

RIVERSIDE 4AG -Terra International Inc. - A new diazinon product, has been added to the Riverside line.

EXHIBIT WDG - Biosys - Nematode-based insecticide is now available in a water-dispersible granule. This new formulation is being marketed by Ciba-Geigy Agricultural Division. Exhibit is designed to control a number of ornamental pests, including cutworms, black vine weevils, and peachtree and dogwood borers.

MARATHON (imidacloprid) - Olympia - EPA granted registration to use on ornamentals to control white flies, thrips, aphids, etc.

PRECISION (fenoxycarb) - Ciba - Received an EPA registration to use on landscape ornamentals container grown ornamentals, non bearing fruit and nut trees in nurseries, Christmas tree plantations, ground covers, greenhouses, lath & shade ornamental crops and interiorscapes to control whiteflies, soft scales fungus gnats and shore flies. This is an insect growth regulator formulated as a wettable powder. Applied as a foliar spray or as a soil drench.

ORTHO BIOSAFE - The Solaris Group Company - Using a hose-end sprayer, sprinkler can or tank sprayer, home gardeners need only add water to the BioSafe granules, stir and spray. One package of product contains more than 100 million microscopic nematodes - and will treat 2,500 square feet. The EPA which regulates pesticides, has exempted beneficial nematodes from normal registration requirements because these nematodes are not harmful to humans or animals. Effective on grubs, cutworms, root weevils and other soil dwelling insects.

Fungicides:

ACCOST (triadimefon) - United Horticultural Supply - A 1% granule formulation used to control diseases in turf.

ALAMO (propiconazole) - Ciba - This product is now available in quart containers for the control of oak wilt and Dutch elm disease. A new micro injection system has been registered with EPA, making the product easier to use and less expensive to apply.

AQ-10 (*Ampelomyces quisqualis*) - Ecogen - Proposed to EPA to register this new active ingredient as a microbial fungicide to control powdery mildew on ornamentals.

TOPSIN M (thiophanate-methyl) - Elf Atochem - The product is now being made available in water soluble bags.

PROTECT T/O (80% mancozeb) - W.A. Cleary Chemical - Has received EPA approval for packaging in water soluble bags. Will be available in a 24 pound case containing 8-3 pound foil pouches. Each 3-pound pouch is filled with 4-12 ounce Water Soluble Bags.

Herbicides:

CONFRONT (triclopyr/dopyralid) - Dow Elaneo - Added to their label usage on tall fescue

KERB (pronamide) - Robm & Hass - Deleted from their label usage on residential lawns and turf.

SCYTHE (pelargonic acid) - Mycogen - A new contact herbicide that is non-selective and controls upon contact for usage in noncrop areas, landscape maintenance ornamental areas, golf courses, nursery container stock, greenhouse weed control, turf prior to planting and other non crop areas.

FUSILADE DX (fluazifop-butyl) - Zeneca Ag Products - Is a new, double-strength formulation of this selective herbicide.

WEEDGRASS (pendemethalin) - O.M. Scotts - This is a new 60% WP formulation being introduced this year for use on turf and ornamental.

ROUNDUP (Monsanto Agricultural Co.) - A glyphosate nonselective herbicide, is now available in premeasured packs. Each Roundup Dry Pak makes 1-gallon of spray solution and is available in 25-pack boxes.

Other:

Florel Fruit Eliminator (Lawn and Garden Products Inc.) has received EPA registration for

use on ornamental plants to remove nuisance fruit.

RESEARCH BRIEFS

To improve the irregular germination of impatiens, supply light for one day at 75 $\mu\text{moles/s/m}^2$ or supply light for 2 days at 15 $\mu\text{moles/s/m}^2$. Then place seeds in darkness until emergence of epicotyl. (W. Carpenter, E.R. Ostmark and J.A. Cornell)

In a comparison of handwatered (HW), microtube watered (MT), capillary mat watered (CM) and ebb and flow watered (EF) greenhouse plants, HW plants has less growth in one year and required more water than those grown with EF (probably due to medium compaction and loss from forceful hand watering). Plants watered with MT had the highest dry weights but the amount of water used and the runoff was greater than for EF. Plants grown on CM had the lowest dry weight and quality in both years of the study. This treatment was high in medium EC and in runoff and required the most water. This treatment may work better with lower light and higher humidity. The EF system used the least water and resulted in the least amount of runoff. Plant quality was not higher than with MT, probably due to a higher EC.

Those plants subirrigated with 175 mg N/liter had a higher dry weight than those subirrigated with 250 mg N/liter. Top irrigated plants grown with 250 ml N/liter had a higher dry weight than those with 175 mg N/liter.

MT and HW systems had runoff with the lowest N concentration. The EF system had the highest concentration of N in runoff water but since there was less runoff, the system released the least amount of total N. CM had high amounts of N in runoff water and released the most runoff. (J.M. Dole, J.C. Cole, S.L. von Broembsen)

Osmotic priming of *Rudbeckia fulgida* seeds in 1.3 MPa KNO³ for 7 days at 30 C increased germination rate and percentage. Polyethylene glycol (PEG) is not an effective priming agent. (A.M. Fay, M.A. Bennett, S.M. Still)

Tank mixes of fenoxaprop or MSMA with pendimethalin and dithiopyr herbicides applied after weeds emerge in spring may offer an advantage in controlling large crabgrass in turf. But this mix does not adequately control goosegrass (none of the postemergents tested control goosegrass). (B.J. Johnson)

Uniconazole concentrations on stems and medium is greater with high spray volumes. Thus high spray volumes increase efficacy since uniconazole is not translocated from leaves. (J.E. Barrett, C.A. Bartuska, T.A. Nell)

Container size has an influence on root development long before a root mass becomes potbound and overcrowded in a container. Fewer coarse roots develop in 2-liter than in 3-liter containers. (V.G. Oddiraju, C.A. Beyl, P.A. Barker and G.W. Stutte)

Preceding six research briefs excerpted from *HortScience* Vol 29(8), August 1994.

Phlox paniculata 'David' is a new release that was selected from a population in the parking lot of Brandywine Conservancy by Richard Simon (Bluemount Nurseries) and FM Mooberry. It has the following characteristics:

- low susceptibility to powdery mildew (< 20% of leaf surface) (few whites with this trait)
- larger flower clusters
- longer bloom period
- stronger stems that resist toppling and do not need staking

- greater height (1m)
(L.P. Perry and S.A. Adam Jr.)

Photinia x fraseri plants grown in containers with a hydrophilic polymer and irrigated every 6 days and without a hydrophilic polymer and irrigated every three days had the same growth. Plants grown with no polymer and irrigated every 6 days had lower root and shoot dry weights. (B. Dehgan, T.H. Yeager and F.C. Almira)

Bradford pears grew better in containers designed to hold water in the lower portion. Water-holding reservoirs were obtained wither by placing 76-liter containers in a frame holding water to a depth of 6 cm or by using containers with drainage hole 6 cm from the bottom. Roots were pruned at the waterlogged bottom but roots grew well above the wet zone. Top fresh weights and trunk diameters were greater after two growing seasons. (K. Tilt, W.D. Goff, D. Williams, R.L. Shumack and J.W. Olive)

Preceding three research briefs excerpted from *HortScience* Vol 29(6), June 1994.

Caladium growth is inhibited by cold stress and heat stress. When tubers are exposed to short term supraoptimal air and soil temperatures (air or soil temp approx. 43 C for 2 or 3 days and exposure times lasting longer than 12 hours/day) as nonplanted or planted tubers, there was a significant delay in sprouting and reduced plant quality. The combination of 48 C for three days or 43 C for five days completely inhibited sprouting. (B.K. Harbaugh and M.R. Evans)

IBA is applied to red oak seedling to speed up a normally slow initial growth period. IBA in fired-montmorillonite clay proved superior to IBA in a polyacrylic starch. There was a significant increase in seedling stem diameter,

root length, leaf area and shoot dry weight. Mycorrhizal colonization was highest with clay and ecto mycorrhizal development was not inhibited. (D.D. Crunkilton, D.E. Garrett and S.G. Gallardy)

Ground automobile tires might be used as a component of container media (in this case tested with chrysanthemum production). But severe growth reductions occurred at the highest amendment rates so ground rubber can't completely substitute for organic matter. High levels of tissue-Zn were found so all but the most Zn-tolerant plants might suffer toxicity. (D.C. Bowman, R.Y. Evans and L.L. Dodge)

Kentucky coffee trees grown in tree shelters have two times greater terminal shoot elongation but 40% less stem diameter growth. Shelters improve height and decrease water loss but do not allow sufficient trunk growth. (R. Kjølgren)

Bark and peat-based amendments combined with 25% or 50% spent mushroom compost resulted in good growth of container shrubs. Minimal compaction occurred with 25% sand, 50% peat or bark and 25% spent compost. (C. Chong, R.A. Clive, D.L. Rinker)

Floral longevity and flower blueing and blackening are problems not prevented by STS. Low shipping temperatures are required to maintain plant quality. STS sprays before shipping might enhance the effect. (L.C. Cushman, H.B. Pemberton and J.W. Kelly)

Preceding six research briefs excerpted from *HortScience* Vol 29(7), July 1994.

Producers of container-grown perennials are advised to provide winter protection measures that prohibit root medium temperatures from falling below -10 C. This recommendation is based on tests with *Gaillardia x grandiflora* 'Goblin,' *Physostegia virginiana* 'Summer Snow,' *Salvia x superba* 'Stratford Blue,' *Tanacetum coccineum* 'Robinson's Mix' and *Veronica repens*. (J.K. Iles and N.H. Agnew)

Of the many botanical and horticultural selections of *Cephalotaxus*, perhaps the five with greatest potential for nursery and landscape use in the southeast are *C. fortunei* (either the species or 'Grandis'), *C. harringtonia* 'Duke Gardens,' 'Fritz Huber,' 'Fastigiata,' and 'Prostrata' (with 'Korean Sun' as a collector's special interest selection). The species and cultivars of *Cephalotaxus* offer landscapes and nurseries an opportunity to provide high quality, deer-proof foundation plantings of great beauty, character and utility combined with excellent potential for production. All are hardy from zone 5 to 9 and are easily propagated and rooted from cuttings under mist. (K.E. Tripp, J.C. Raulston)

Preceding two research briefs excerpted from *Landscape Plant News* Vol 5(1), March 1994.

WELCOME NEW MEMBERS

Active Members

Nichols Nursery, Inc.
2742 Pulaski Highway
Newark, DE 19702
(302) 834-2426
Reps: Stephen J. Nichols and Charlene R. Nichols

Sussex Tree, Inc.
RD 3, Box 114
Bridgeville, DE 19933

(302) 629-9899
Reps: Daniel Nelson

Working With Stone. Here are practical and specific plans for gardeners who want to add interest to their garden settings. The 162-page paperback book "Stonescaping: A Guide to Using Stone in Your Garden" is available, postpaid, for \$19.90. Contact: Storey Communications, P.O. Box 445, Pownal, VT 05261; Tel:1-800-441-5700.

Federal OSHA Compliance Manual for the Nursery and Landscape Industry. This 600 page reference manual covers the numerous and complex OSHA regulations, organized in a three-ring binder. The manual is available exclusively from AAN. To order mail check to AAN, 1250 I street, NW, #500, Washington, DC 20005. Cost of the manual is \$131.00(AAN Member) - \$155.00(Non-AAN Member). For more information Tel:(202)789-2900, Fax:(202)789-1893. With proper planning, your firm can greet the OSHA inspector with confidence.

Wise Watering For Beautiful Gardens. A free booklet created by the Dig Corporation. This easy-to-read, eight page booklet is packed with colorful photographs, informative illustrations, and a variety of useful gardening suggestions for creating and maintaining a water-wise landscape. To order copies send your request to: DIG Booklet, 130 Bosstick Boulevard, San Marcos, California 92069.

Natural Solutions. A guide to managing the many facets of planing, developing and operating a waste-treatment facility. The eight-page, full-color illustrated brochure outlines the company's full-service approach to planning, designing, building, operating, and financing municipal waste-treatment facilities. Published by PWT Waste Solutions, Inc., part of the Thames Water Group. For a copy contact: Xan Haynes, Marketing & Sales, Tel:(205)823-5231, Fax:(205)823-6820.

The Greenhouse and Nursery Handbook. This 512 page hardcover has over 150 B&W photos, tables, and glossary and complete instructions on how to grow hundreds of ornamental plant varieties. Other topics are how to plant greenhouse & nursery facilities and how to organize growing operations as well as practical advice about how to sell ornamental plants at a profit. Book is available for \$49.95 plus \$4.95 shipping. For more information contact: Andmar Horticulture Books, West Yellowstone Blvd., P.O. Box 217, Mills, WY 82644-0217.

Herbs For The Home Gardener. This book features a profile of 32 herbs, including scientific names, plant characteristics, disease and bloom time. This is a Penn State publication compiled by Keppy Arnoldsen, a horticulture graduate student and Aimee Voisin, a senior majoring in horticulture, after completing an independent study project growing 67 herbs in an ornamental plot at Penn State's Trial Gardens. Available for \$8.00, the book is sold through the Publication Distribution Center at 112 Agricultural Administration Bldg., University Park, PA 16802.

Recycling And Resource Conservation: A Reference Guide For Nursery And Landscape Industries. This reference manual contains technical information on composting landscape debris, recycling water in greenhouses and more efficient fertilizer uses. For more information contact: PNA, 1924 North Second Street, Harrisburg, PA 17102. Tel:717)238-1673, fax:(717)238-1675.

Educational Training Videos: Available from PPGA (The Professional Plant Growers Association) **Blooming Profits**, covers the care and merchandising of bedding plants (\$39.95 plus shipping). **Flowering Plants**, covers the care and merchandising of flowering potted plants (\$39.95 plus shipping). **Success with Bedding Plants**, discusses how to select, install and maintain bedding plants (\$100 PPGA members/\$130 non-members plus shipping). **The Professional Guide to Flowering Annuals**, was designed to show professional landscapers how to plan, plant and maintain flowering annuals (\$2.60 postpaid). For more information on PPGA videos or membership, contact the association at P.O. Box 27517, Lansing, MI 48909-0517; Tel:(800)647-7742.

The Pesticide Directory. This 1994-95 revision is a guide to the products, producers, educators, researchers and regulators of the U.S. pesticide industry. Whether you operate in the U.S. or outside, this book serves as a guide to contacts and who is doing what in the U.S. pesticide industry. From Thomson Publications-price of the publication is \$49.95.

Spanish-English/English-Spanish Illustrated Agricultural Dictionary. A dictionary of agricultural terms written by Dr. Robert P. Rice is available from Thomson Publications for \$27.95. Call (209) 435-2163 for order blanks.

Identification of Insects and Related Pests of Horticultural Plants - Pictorial Guide. This is a full-color, unbound, 48-page leaflet compilation illustrating life stages and crop damage of 10 major insect, mite, and related pest groups of ornamentals and vegetable crops. A

page at the beginning of each section outlines common species, developmental stages, economic importance, biological control, where species are found, and stages for effective pesticide use. *and*

Tips on the Use of Pesticides on Floricultural Crops: A guide to Tinsecticide, Miticide, Fungicide, Growth Regulator and Herbicide Application contains current easy-to-read, chemical application charts for insects, mites, diseases, growth regulation, weeds and algae; procedures for pesticide mixing and application; tips for increasing pesticide efficiency; section on safe storage; and methods for disinfestation and sanitation. Available as a package for \$21 (Ohio Florists' Association members) or \$31 (nonmembers). Call (614)487-1117.

Tips on Growing Poinsettias. A full-color, 116-page comprehensive, commercial production guide includes information on stock plant management, propagation, growing media, nutrition, light, temperature, irrigation, schedules, production in southern climates, chemical growth regulators, fungicides, insecticides, postproduction care and handling, production costs and analysis, new varieties, and current poinsettia research. *and*

Tips on the Use of Chemical Growth Regulators on Floricultural Crops. A full-color, 92-page compilation with 63 photographs. Features CGR application recommendations for many floricultural crops. Contains comprehensive sections on mechanisms of action, calculations, and weed control of outdoor crops. *and*

Tips on the Use of Pesticides on Floricultural Crops: A guide to Tinsecticide, Miticide, Fungicide, Growth Regulator and Herbicide Application (see previous listing for description) Available as a package for \$28 (Ohio Florists' Association members) or \$38 (nonmembers). Call (614)487-1117.

Flower Grower's Hotline. This timely newsletter announces unexpected insect, disease, cultural, or manufactured problems occurring in commercial floriculture production. A minimum of 10 Hotlines is mailed during a 12-month subscription period, which runs from July 1 to June 30. Subscriptions cost \$15. Call O.F.A. (614)487-1117.

Insect and Mite Control on Woody Ornamentals and Herbaceous Perennials. Copies available from Ohio State University Extension Publications Office for \$3.50 plus \$2.50 shipping. Call Janis or Vicki at (614)292-1607.

September 20 - Renaissance Gardener Roberto Burle Marx. A slide lecture sponsored by Delaware Center For Horticulture, 1810 North Dupont Street, Wilmington. 7:30 PM. Contact DCH at (302) 658-6262.

September 21 - Plant Production Evening Seminars for the Professional Grower, H. Stanford Roberts Nursery, Inc. Newtown, PA. Topics: Setting up a Pot in Pot Operation/Federal Pesticide Record Keeping Requirements/Tour of the Nursery. Registration fee \$15.00 includes dinner. For information write Nursery, Montgomery County Coop Extension, P.O. Box 20, 1015 Route 113, Creamery, PA 19430.

September 21 - LCA MD-DC-VA Landscape Expo. Tele:(301)948-0810.

September 22-27 - Professional Plant Growers Association Conference & Trade Show, Buffalo, NY. Tele:(800)647-7742.

September 27, 28 - Pesticide Applicator Training Review Session, Delaware Fire School, Dover. Day 1 - 8:30 a.m. - 4:30 p.m.; Day 2 - 8:30 a.m. - 12 noon. Recertification credit awarded. Registration required. Contact: Susan Whitney, 831-8886, for further information.

September 28 - Pesticide container disposal and chipping (polyethylene plastic pesticide containers), Magnolia Del Dot Yard. Containers must be 3x rinsed or jet rinsed. Make sure hollow handles are cleaned.

September 29 - Plant Production: Evening Seminars for the Professional Grower, Hansen Nurseries, Sassamansville, PA. Topics: Improving your Water Management/Where is there help for better water management?/Review of new WPS Pesticide labeling requirements/tour of nursery. Registration fee \$15.00 includes dinner. For information write Nursery, Montgomery County Coop Extension, P.O. Box 20, 1015 Route 113, Creamery, PA 19430.

September 29 - Pesticide container disposal and chipping (polyethylene plastic pesticide containers), Middletown Del Dot Yard(tentative). Containers must be 3x rinsed or jet rinsed. Make sure hollow handles are cleaned.

September 30 - Pesticide container disposal and chipping (polyethylene plastic pesticide containers), Sussex Conservation district Office, Shortly Rd, Georgetown.

Containers must be 3x rinsed or jet rinsed. Make sure hollow handles are cleaned.

October 4/October 18 - Municipal Tree Restoration Workshops. Macungie Memorial Park-10/4, or PECO Energy Building, Coatesville-10/18. Contact Julianne Schieffer (610)489-4315.

October 10-14 - Tree Climbing School, Penn State University, Lima Campus. Contact Rick Johnson (610) 565-9070.

October 12 - Certified Nursery Professional Exam. Delaware Department of Agriculture. Contact Linda Pevey (302)629-0329.

October 17-19 - New England Greenhouse Conference & Trade Fair. Sturbridge Host Hotel Conference Center, Sturbridge, Mass; NEGC, (800)376-2463.

October 19 - Total Quality Management Seminar, Holiday Inn, Lionville, PA. For more information contact: Penn State Cooperative Extension, Montgomery County, Tel:(610)489-4315, FAX:(610) 489-9277.

October 19-21 - Better Composting School, Ramada Inn in Hanover, MD (near BWI Airport) Contact K. Marc Teffeu at (410) 479-5757.

October 27-28 - Urban Forestry Workshop, Penn State University, State College. Contact Bill Elmendorf (814)863-7941.

October 28-30 - Mid-Atlantic Rhododendron Chapter Meeting, Staunton, VA. Tele:(804)723-3313.

November 17 - Landscape Integrated Pest Management Symposium, Landscaping for the 90s. Holiday Inn, Toms River, NJ. Sponsored by Rutgers Cooperative Extension. Contact Deborah Smith-Fiola at (908) 349-1246.

November 17-19 - National Arborist Association Tree Care Industry Expo '94. Pennsylvania Convention Center, Philadelphia, PA. Tele:(733-2622).

December 5-6 - "Tree Hazards: The Ultimate Session," by Alex Shigo and Claus Mattheck, Sturbridge, MA. Sponsored by the Tree Care Institute and the Massachusetts Arborist Association. Contact: John Kirkland, Tree Care Educators, (503)254-0482.

December 6, 7 - Pesticide Applicator Training Review Session, Delaware Fire School, Dover. Day 1 - 8:30 a.m. - 4:30 p.m.; Day 2 - 8:30 a.m. - 12 noon. Recertification

credit awarded. Registration required. Contact Susan Whitney, (301)831-8886.

1995:

January 3-6 - "Advanced Turfgrass IPM Short Course," sponsored by the University of Maryland Cooperative Extension Service. Contact: Extension Secretary, Department of Entomology, University of Maryland, College Park, MD 20742. Tel:(301) 405-3913.

January 4-6 - Winter MANTS. Baltimore Convention Center, MD. Contact Carville Akehurst (410)256-1799, FAX: 410-256-2208.

January 9-13 - "Advanced Landscape Plant IPM Short Course," sponsored by the University of Maryland Cooperative Extension Service. Contact: Extension Secretary, Department of Entomology, University of Maryland, College Park, MD 20742. Tel:(301)405-3913.

January 18-19 - Delaware Horticulture Industry Expo, Sheraton Inn, Dover, DE. Contact Linda Pevey (302)629-0329.

January 21-22 - Pesticide Applicator Training Review Session, Delaware Fire School, Dover. Day 1 - 8:30 a.m. - 4:30 p.m.; Day 2 - 8:30 a.m. - 12 noon. Recertification credit awarded. Registration required. Contact Susan Whitney (302)831-8886, for further information.

January 22 - Pesticide Applicator Certification Exam, Delaware Fire School, Dover, 1:00 p.m. contact Larry Towle, 1-800-282-8685.

January 30 - 5th Annual University of Delaware Pesticide Conference. Sheraton Inn, Dover, DE. Contact Susan Whitney (302)831-8886 for further information.

February 6,7 -30th Annual Shade Tree Symposium and Trade Show, Lancaster Host Resort and Conference Center, Lancaster, PA. Hosted by Penn-Del Chapter, International Society of Arboriculture and Penn State Extension. Contact Elizabeth Wertz at (215) 795-2096.

April 26, - Mid-Atlantic Interior Landscape Conference, Longwood Gardens, Kennett Square, PA. For more information contact: Penn State Cooperative Extension, Montgomery County. Tel:(610)489-4315, FAX:(610)489-9277.

July 25-27 - 1995, East-Penn Allied Nursery Trade Show. Tel:(717)238-1673.

