

ASSOCIATION NEWS
Linda Pevey
Executive Director, D.A.N.

The office of the Delaware Association of Nurserymen has moved. The new address and telephone number are: RD 3, Box 230, Seaford, DE 19973, (302) 629-0329.

Look for a higher profile for the Delaware Certified Nursery Professional program in 1994. The Board is hearing proposals from marketing consultants to create a promotional package for the CNP program. The next date for the CNP test is October 12 at the Delaware Department of Agriculture.

The Summer Turf and Nursery Expo is scheduled for August 17 at the Apgar Turf Farm in Smyrna. Registration flyers will be in the mail soon. If you are interested in exhibiting, please call me for an exhibitors' brochure. This year's program will include workshops on drip irrigation, pruning shrubs, correcting soil problems while preparing for seed or sod and an update on turf pests. This event is always well-attended and enjoyed by all. Mark the date on your calendar and plan to join us.

The summer MANTS is being held in Baltimore in conjunction with the annual AAN convention in July. The D.A.N. will have a booth at the show. We are looking for volunteers to help man the booth. Please call me if you can help out.

D.A.N. T-shirts are available for sale. They are teal green, short-sleeved shirts with the D.A.N. logo in white. They can be purchased for \$10.00 by sending a check payable to D.A.N. along with your shirt size (M, L, XL) to the D.A.N. office (RD 3, Box 320, Seaford, DE 19973).

U OF D NEWS
Susan Barton
Extension Specialist

Ornamentals Short Courses will begin again in August with Herbaceous Landscape Plants (August 16, 18, 23, 25), the Poinsettia School (August 16, 17) and Lawn Establishment and Maintenance (August 24, 29, 31). Drafting Techniques for the Landscape Designer is back by popular demand and scheduled for October 12, 19, 26 and November 2, 9, 16. You will receive a flyer this summer. Be sure to register early so we can plan accordingly. Don't miss this opportunity to expand your horticultural knowledge with topics that pertain directly to the work you do each day. In 1995, the series will also include a business management course. You can look forward to this opportunity to learn how to make more money with the horticultural knowledge you have!

The annual Delaware/Pennsylvania Garden Center Bus Tour is scheduled for Wednesday, July 13, 1994. We will be touring four garden centers in Northern New Jersey. Russ Powell and I have to choose from about 8 suggestions we received from New Jersey County Agents. One possibility is to include a highly-acclaimed farm market for those of you who want to diversify to expand summer sales. The final itinerary and flyer will be sent out in June.

The UDBG (University of Delaware Botanic Garden) and the D.A.N. will once again sponsor a research and plant material evening for the nursery/landscape industry. Last year we called this a garden party but we want to change the name to reflect the importance of the material covered. So the new name is ? (any suggestions?). Anyway, the event will be held on Tuesday, September 13, 1994 at the UDBG in Newark. We will have a tour and update of current ornamentals research, a tour of the UDBG (including a fabulous herbaceous garden

and new wildflower plots), dinner and a plant give-away. Last year the evening was both fun and informative. This year promises to be the same.

Speaking of the UDBG, the spring plant sale was a huge success. We published catalogues and featured hard-to-find oaks, hickories and ferns. We sold a range of plants from those completely unavailable in the nursery trade to those that are available but need promotion to the consumer. We hope this sale helps spread the word about plants like *Clethra*, *Scabiosa*, *Deutzia* 'Nikko' and others so consumers come and ask for these great plants. Thanks to Diane Hill at Gateway, we provided a list of retail nurseries in the D.A.N. for consumers to visit to fulfill the rest of their plant needs. Many people asked for plants we were not selling or plants we no longer had and we steered them in your direction. As we educate the consumer with sales like this, business should increase for everyone. The UDBG Friends and Plant Sale Committee would like to send its thanks to the D.A.N. for its support.

This summer, Jo Mercer and I are conducting a wildflower sod focus group study. We will make a presentation including a slide show introduction, video of installation and tour of wildflower sod plots to three different focus groups. The focus group will be led through a series of questions and discussions by a focus group facilitator. We hope the results will tell us something about the acceptability of wildflowers in the landscape and about using wildflower sod as an installation method. The information collected should help growers, landscapers and retailers market this new and exciting product. We also hope to evaluate this technique as a method for discovering how to introduce new horticultural crops or concepts to the consumer. The first group will be comprised of homeowners and is scheduled for June 29, from 6:00 to 9:00 PM. We would also like to

conduct two focus groups from within the industry. A landscape contractors' focus group meeting is scheduled for July 27 from 6:00 to 9:00 PM at Townsend Hall in Newark. A landscape maintenance professionals' focus group is scheduled for August 3 from 6:00 to 9:00 PM again at Townsend Hall in Newark. If you are interested in participating in one of these groups, please complete the form in the back of this newsletter. Dinner will be provided and the evening will give you a chance to learn about wildflowers and wildflower sod as well as express your opinions.

This year the UDBG is an official participant in the SE PA IPM Research Group. We are sending in weekly growing degree day, insect monitoring and plant phenology information. Winterthur and Mt. Cuba Center (through Davey Tree) are the other new Delaware participants. This group has collected three years of valuable data linking insect activity to growing degree days and plant phenology. I am using this data to time information in *Ornamentals Hotline* and we hope to make predictive models for horticultural pests that apply directly to the Delaware Valley. If you would like to participate in this research project next year, let me know.

I am also 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.

MARKETING NATIVE PLANTS

Susan Barton

Extension Specialist

The following article is a summary of a workshop conducted by W. Gary Smith, Associate Professor, University of Delaware, at the 1994 Delaware Horticulture Industry Expo in Dover, DE.

The traditional horticulture industry and the environmental restoration industry are two distinct markets for native plants. People that like plants tend to like the latest trends and right now native plants are “in.” But these plant enthusiasts are only a small percent of the population. Native plants are used in the repair of damaged ecosystems through environmental restoration but this market is relatively small. To expand the market for native plants, we must transplant the philosophy of restoration and reparation into the home landscape. And convince homeowners that their two acres really are part of the “big picture.”

In ecological landscape design, native plants are arranged in planned landscapes as they would occur in nature. This design style is based on several fundamental principles. Plants are not individuals but are members of communities. For example, *Magnolia virginiana* is part of a community found in nature that often includes *Clethra alnifolia*, *Aronia arbutifolia*, *Itea virginica* and *Ilex glabra*. By using these naturally-occurring combinations, a landscape develops a sense of place that ties it to the region in which it is planted. It takes time to develop the desired effect in an ecological landscape design. One way to increase the immediate impact is to plant many small plants and remove the extra plants as they begin to grow and crowd out one another. The final tenet of ecological design is that while it may be a low-maintenance landscape, it is not a no-maintenance landscape. The landscape manager

must remove undesirable species and maintain control over the landscape to keep the desired effect.

In ecological landscape design, patterns are borrowed from nature. If one begins with an existing lawn in this part of the country and discontinues maintenance, it will become an open meadow. Herbaceous annuals will predominate the first year followed by perennials, grasses and a few woody species deposited by wind and birds. In years three through ten, a woody old field will develop, characterized by thickets of shrubs underlaid by a perennial mosaic carpet. By years ten to fifteen, dense thickets of woody material will create interior rooms and spaces. After twenty years, a young forest will exist with narrow spaces and vertical lines from the trunks of many closely-spaced trees. An older forest with four distinct layers--canopy, understory, shrub layer and ground layer--will develop eventually. This process of natural succession provides many opportunities to the ecological landscape designer. Open meadows can be created to emphasize views. Woody old fields can be used to create distinct outdoor spaces and rooms. Forests can be used to screen views and wind as well as provide closure and ceilings.

Most consumers are familiar with a traditional style of landscape typified by clipped foundation plantings and large expanses of mowed lawn. Yet homeowners become excited by the possibility of living in a landscape rather than simply viewing it. Native plants can and are used in traditional landscapes. But ecological landscape design takes the use of native plants one step further by designing plant communities inspired by the way they occur in nature. These “natural ecosystems” can be incorporated into many landscapes including the front yard, the back yard, institutional landscapes, corporate landscapes, urban landscape islands, parking lots, streamway restorations, rooftop gardens,

woodland edge gardens and highway plantings. For example, in a backyard, one can mow selected areas of turf but plant native grasses perennials and shrubs in masses to look like a woody old field. The landscape user will enjoy the visual mosaic and the places created inside the woody old field.

The success of marketing native plants is dependent upon issues that fall into six basic categories--regulations, consumer education, management and maintenance technologies, adequate sources, significance of wildlife and developer education.

Regulations exist in some locations that may specifically prohibit meadow-style landscapes. Those laws can be changed by concerned citizens who are willing to take the time to educate law makers. The use of native landscapes in public places increases everyone's awareness of the desirability of this type of landscape and makes change easier.

Demonstration landscapes are crucial to changing the general public's impression of ecological landscape design. Those visible landscapes should be coupled with publications explaining the landscape style. Nursery associations, educational institutions and public gardens can all play a role in teaching the consumer about ecological landscape design. People already have an overall concern for the environment. We can show them how ecological landscape design fits into that environmental concern. Children are a great place to start. When they learn about ecosystems in school, it becomes a natural extension to explain how those ecosystems can be adapted to the home landscape.

Maintenance and management concerns of ecological landscapes pose some problems currently. There is a lack of appropriate equipment and expertise for efficient

performance of some management tasks. For example, a homeowner who wishes to spread compost on their 3/4 acre site will have a hard time finding a piece of equipment or contractor suited to the job. The alternative is several backbreaking days with a wheelbarrow and a shovel. The landscape manager must be able to identify plants easily in order to keep desirable and eradicate undesirable species. The designer must also understand soil types and site characteristics in order to select species that fit the demands of the site and the design.

So, if we convince every homeowner in Delaware to relandscape their homes following an ecological landscape design, where will they buy the plants? Supply and demand is a tricky issue. Growers aren't willing to produce a sufficient supply until they are certain of the demand. Designers can't sell landscapes until a supply of plants exists. Garden writers can help arouse interest in ecological designs. If more homeowners ask for native plants at the garden centers, the message will eventually reach the grower. But until that time, growers should speculate on some great native plants that homeowners will buy if they are displayed and labeled properly in the garden center.

We can sell ecological landscape design based on what it will do for wildlife. How many people buy birdseed all winter to attract birds? Think how excited they'd get if they knew what one butterfly bush or one shrubby dogwood could do.

The developer poses a tough problem. They have a lot of power and are difficult to reach. A demand from the general public and high visibility in the media may help. We can also work closely with individual developers. By building a network of people and establishing a feeling of trust, we may convince some developers to employ building techniques that augment ecological landscape design.

The participants of this exciting workshop ended the day by generating the following list of actions to promote native plants and ecological landscape design.

- produce a First State calendar with pictures of native plants featured each month;
- provide speakers on ecological landscape design to science teachers in the schools;
- organize a native plants marketing campaign through the D.A.N.;
- use the new Route 1 in Delaware (or Route 13) as a showcase for ecological landscape design;
- recognize ecological landscapes and active people (especially progressive developers) with awards;
- create “example landscapes” throughout the state with labelled plants and interpretive information to take the mystery out of ecological landscape design;
- ask nurseries to mark or feature native plants in their catalogs; and
- ask garden centers to create native plant displays.

Education consistently emerged as the best way to promote native plants. People get excited when they see how environmental landscape design works. We plan to follow up on some of these ideas at the University. If anyone would like to help or has a specific suggestion, please contact Susan Barton or Gary Smith (831-2531).

NUTRIENT BEST MANAGEMENT PRACTICES FOR NURSERIES AND GREENHOUSES

Susan Mullin, Chairman
VNA Environmental Affairs Committee

Editor's Note: As in other sectors of agriculture, nurserymen are concerned about the effects of environmental regulations on their industry. Some states have chosen to voluntarily develop best management practices to maintain and improve water quality associated with nursery operations. This article is a draft proposal of best management practices for the Virginia Nurserymen's Association.

Water Supply - The Lifeblood of the Nursery Industry

A dependable, high quality water supply is the lifeblood of the nursery and greenhouse industry. So it is not surprising that substantial water storage reservoirs are usually a major feature in nursery design. Since runoff collection and recycling help to insure this supply, and increase nursery efficiency, they are desirable both from a nursery standpoint and a water quality standpoint.

It is best to locate storage reservoirs offstream from natural drainages. This is possible when a new nursery is developed, or when an older nursery is expanded or upgraded. Add one or two additional settling ponds in a series when discharge to natural drainages/surface water is anticipated. Design settling ponds with a high surface area to depth ratio to allow for emergent plant growth and nutrient uptake. They should have a capacity to contain the 25 year, 24 hour storm. Take recycled and runoff water from the discharge of the first settling pond and use it for irrigation. Discharge of pond effluent to established or created wetlands preceding open surface waters will serve as a "polishing" mechanism for nutrient removal.

Pond Design - Quantity First

Since the primary purpose of nursery reservoirs and storage ponds is to insure an adequate supply of high quality water to meet plant demands, give careful consideration to proper sizing.

1. Estimate annual plant irrigation requirements--for example, field nursery trees require 1 gallon of water/day/year of tree age, during the growing season.
2. Allow 40-60% of annual storage capacity for seepage, evaporation and sedimentation losses.
3. In Virginia, the approximate drainage area required to store one acre foot of water varies from one acre in the mountains to five acres on the eastern shore. Runoff diversion ditches may be necessary depending on pond design capacity and whether or not a spillway is included.
4. If designing a single pond only, factor in 50-100% greater volume for carryover into the first half of the following year and/or for prolonged drought periods.
5. To be cost effective, pond sites must be able to keep stored water and dissolved nutrients, and other pollutants from percolating into groundwater. The most desirable and least expensive means of insuring against water loss is to select a pond site with soils having low permeability. Sites with a wide range of soil particle sizes, including small gravel, fine sand, silt and at least 20% clay, usually achieve the desired permeability (1×10^{-6} cm²/sec) by compaction. The depth of compacted soil should be no less than 12 inches. If this permeability cannot be achieved by compaction of native soils, then install clay/bentonite or other artificial liners.

Irrigation Management - How much is Enough?

The more efficient an operator is in applying water, the less opportunity exists for generating high nitrate runoff. Therefore, traveling gun or other spray irrigation systems by design are more likely to require larger runoff collection and storage ponds than are sensor-activated drip or pulse irrigation systems or the use of an intermittent irrigation schedule. The less efficient systems will also result in higher fertilizer costs.

Formulate high water-holding capacity media from peat moss, pine bark, and similar organic materials with a sand-lime mix to increase irrigation efficiency and reduce leachate production and subsequent runoff. Space several irrigations evenly (i.e. 20-60 minutes apart) and do not apply more than 300 ml (1/3 quart)/1 gal pot/day. Use wetting agents on soilless media to facilitate water retention. Install grassed drainages with slopes not exceeding 2% to intercept and transmit runoff from sloped container beds or between tree rows to provide means for trapping phosphorus-laden sediment, and for the uptake of nitrate nitrogen.

Use subirrigation trays as an efficient alternative for greenhouse plant irrigation.

Tree and Shrub Fertilization - The Right Amount In the Right Place At The Right Time

The horticultural industry includes a wide spectrum of ornamental crops produced in the field or in containers. Products include trees, shrubs, perennials, bedding plants, interior plants, cut flowers and more.

The development of complete fertilizer programs requires an understanding of plant species requirements, the soils or media used, and the quality of the water supply. Concern for high quality drinking water and the maintenance of

aquatic communities imposes additional constraints on the nursery or greenhouse operator.

Best management practices should reduce the likelihood of surface and groundwater contamination from fertilization practices in the industry.

A. Set up a Monitoring Program -

Monitoring will indicate the limiting factor in your soil, media, irrigation water, or runoff and

recycle water. By knowing the limiting factor, you are better able to control practices to minimize the discharge of high nutrient runoff to surface waters and deep percolation to groundwater.

The following schedule is a possible framework for setting up your monitoring schedule:

EXAMPLE MONITORING SCHEDULE

MEDIA	PARAMETER	STANDARD*	FREQUENCY	APPLICABLE
Irrigation water source	pH EC, umhos/cm NO ₃ -N Ortho-p	5.0 - 6.5 1100 umhos/c Plant N&P requirement & drinking water standard (10ppm)	Weekly during season	Field & container nurseries
Mixed container media	pH ECe, mmhos/c	5.5- 6.5	Weekly during season	Container nurseries
Field soil	pH Ece, mmhos/c TKN, NO ₃ -N P ₂ O ₅ , K ₂ O	5.5 - 5.6 1.5 mmhos/c Plant N & P requirements	Every three years	Field & container nurseries
Tissue or sap analysis (optional)	NO ₃ -N PO ₄ -P K ₂ O	deficient or adequate	Early/late spring	Field & container nurseries
Runoff/ recycle water	NO ₃ -N Ortho-P	>10 ppm	Following irrigation	Field & container nurseries
Discharge water	NO ₃ -N Ortho-P	>10ppm (possible NPDES criterion)	Discharge events	Field & container nurseries

B. Follow Accepted Fertilizer Guidelines

1. Base fertilizer rate and mixture on soil, media and recycle and/or surface or groundwater analysis as well as plant species requirements; (plant tissue analysis may be required for certain specialty crops).
2. Only use complete fertilizer mixes, i.e. containing phosphorus, when the soil or media analysis indicates a low or critical level. Incorporate phosphorus into the root media at planting to reduce surface runoff.
3. In container nurseries, use slow release granular fertilizers with preplant incorporation instead of liquid fertilization to reduce high nitrate surface run-off. Split the total application between preplant and halfway through the growth cycle to increase use efficiency and minimize loss potential.
4. Monitor and adjust soil or media pH to between 5.5 and 6.5. In this range most nutrients are available, and few plant deficiency symptoms occur.
5. Fertilize evergreens with 1-3 lbs N/1000 ft² of root zone and deciduous trees with 4-6 lbs N/1000 ft².
6. Fertilize young trees and shrubs annually (preferably with split applications) at a rate sufficient to establish a strong root system. Fertilize mature trees every two to four years to maintain existing growth.

Excerpted from *VNA Newsletter* March/April 1994.

TEN PRACTICAL TIPS TO MINIMIZE NITRATE RUNOFF

T. Yeager, University of Florida
R. Wright, Virginia Tech
D. Fare and Charles Gilliam, Auburn Univ.
J. Johnson, Rutgers Cooperative Extension
T. Bilderback, NC State University
R. Zondag, Ohio Cooperative Extension

Public environmental consciousness and concern for safe drinking water make it necessary for the nursery industry to understand the impacts of fertilization and management practices on water resources. Some public sectors perceive agriculture as a villain that contaminates ground water. However public perception alone should not be the basis for regulation. Rather, data is needed to determine agriculture's influences on the environment.

Currently, the federal limit on nitrate in drinking water is 10 parts per million (ppm). Relationships between nitrogen (N) application in nurseries and nitrate found in surface and ground water have not been established. This research, coordinated and conducted in six states, surveyed nitrate levels in container bed runoff, wells, collection ponds or reservoirs, and surface water discharged from nurseries.

Runoff was sampled at six-week intervals in subject nurseries, during the period from April-October 1990. A wide range of controlled-released and liquid solution fertilizers were used at the nurseries. Application rate and frequency also varied from nursery to nursery.

Runoff from production beds using controlled-released fertilizers ranged from 0.5 to 33 ppm nitrate and averaged 8 ppm. Samples obtained in early spring following fertilizer application usually contained higher nitrate levels than late samples. Bed water runoff from nurseries using

both controlled-released and solution fertilizers had higher nitrate levels, ranging from 0.1 ppm to 135 ppm and averaging 20 ppm.

In general, the research indicted that nitrate in nurseries may exceed the 20 ppm drinking water standard for bed runoff, wells, irrigation ponds, and at points where runoff leaves the nursery property. The study revealed that, regardless of fertilizer system, runoff levels vary considerably. Nursery operators should implement management practices to minimize nitrate runoff. Consider the following 10 recommendations:

1. Monitor nitrate levels in the container medium, production bed runoff, well water, runoff water in collection reservoirs, and water discharged from the property.
2. Maintain records and develop a database of information to justify making changes in the needed fertility program.
3. Some controlled-release fertilizes can cause excessive nitrate levels in runoff immediately following fertilizer application. If this occurs at your nursery, consider changing the type of controlled release fertilizer used, and apply them sequentially over an extended period.
4. Routinely calibrate spreaders and other fertilizer application equipment.
5. Monitor the irrigation duration, since excessive irrigation contributes to nitrate runoff. Consider using "pulse" irrigation.
6. Check efficiency of irrigation systems and modify them as needed.
7. Establish grass filter strips in surface drainage waterways.
8. Reservoirs may be used to impound runoff and rain water. However, reservoirs and ditches

may need liners to prevent ground water contamination. Several connected reservoirs will facilitate more biological degradation than a single reservoir.

9. Tanks containing concentrated solutions of fertilizer should be placed on and surrounded by secondary containment barriers. Check state regulations and other sources for specifics regarding construction details.

10. Berm property border to prevent surface water from flowing onto or off of property.

This article was adapted from a research report published in the *Journal of Environmental Horticulture*, vol 11, no. 4, December 93.

WHAT IS WORKERS' COMPENSATION INSURANCE?

Bill Allen

Workers' Compensation insurance is a no-fault form of insurance that was designed to help an injured worker overcome his injury while still maintaining a reasonable lifestyle. The coverage provides compensation for lost wages up to the percentages and maximums set by individual state laws. It also pays all reasonable medical and rehabilitation costs. The availability of workers' compensation coverage to an injured worker also eliminates the workers' ability to sue an employer for injuries received on the job in most cases.

Who needs workers' compensation insurance?

The statutory requirements for companies to provide Workers' Compensation Insurance varies by State.

Until recently, Rhode Island required only businesses with four or more employees to

provide Workers' Compensation Benefits to their employees. There are now a number of industries that must provide coverage for employees regardless of the number of employees. As far as we can tell, Nurserymen and Landscape Contractors still fall under the four or more rule.

Editor's Note: In Delaware, any employer with one or more employees must carry Workers' Compensation Insurance.

Individual owners or partners are not eligible to collect Workers' Compensation Benefits but must be used in counting the number of employees in Rhode Island to determine if the coverage must be provided. Corporate officers are included for coverage in most states and can exclude themselves from the coverage in Rhode Island and Connecticut.

Editor's Note: In Delaware incorporated businesses may exclude the first four officers.

What happens if XYZ Nursery is required by state law to provide Workers' Compensation Benefits to its employees but doesn't purchase the coverage from an insurance carrier?

XYZ Nursery must pay the benefits that the injured workers are entitled to by law.

Let's take an example. Larry is one of 8 employees that works for XYZ Nursery and while helping a customer pick out an azalea for his yard, steps backwards into a hole and tears the ligaments in his knee. Larry has to undergo Arthroscopic Surgery to repair the ligament damage, is going to be out of work for at least 10 weeks and will have to go through some pretty rigorous rehabilitation. His medical bills will exceed \$15,000, rehabilitation costs will be \$8,000 and his lost wages will be about \$4000. Guess who's going to pay? I think the XYZ Nursery Mutual Insurance Company!

Now what would happen if XYZ Nursery only employed 2 workers?

XYZ Nursery would not be required by law to provide the coverage to Larry and they could tell him "tough luck, kid".

Unfortunately for XYZ, while Larry was in the hospital recuperating from his knee surgery, his Uncle Simon Sueam, Esq. from the law firm Cheetam, Beatam & Sueam came to visit. Larry told Uncle Simon what had happened and was lamenting as to how he was going to pay for college now that he was going to lose his football scholarship and what was he going to tell the NFL scouts that had been following him.

What do you think was the first thing that Uncle Simon thought of after speaking with Larry?

Does XYZ Nursery have any protection against a suit? (Their liability insurance excludes injury to employees).

What do you think a jury will do after they hear how this promising career has been ruined and the employer left Larry on his own? How big of a Brinks truck should Larry rent?

Even employers that are not obligated by law should really consider purchasing Workers' Compensation coverage for their own protection. Workers' Compensation not only provides protection that benefits their employees, it also provides the protection against lawsuits that could ruin their business.

Editor's Note: In Delaware, all businesses with employees must have Workers' Compensation coverage. Some business owners are unaware of this law and others disobey the law. This article illustrates what might happen to businesses that don't follow the Workers' Compensation Insurance laws.

Reprinted from *The Rhode Island Nurserymen's Newsletter*, No 15, March 1994.

HOW TO ALLOCATE OVERHEAD COSTS

Russell Powell
Penn State Cooperative Extension

Accurately allocating overhead costs is one of the most difficult aspects of job costing. Everyone has their own method of allocating overhead. Whatever method you choose, it is important that you plan ahead and then monitor the progress and accuracy of your predictions.

Finding the right way of recovering overhead is not a simple, one time event, but rather a process because every job is different. You decide on criteria, make calculations, implement the plan and then continually make adjustments to improve the entire process.

Begin by budgeting your overhead for the next year. Use your Profit and Loss Statement from the previous year (adjusted for anticipated changes) as a guide for calculating your overhead. If you do not have information from the previous year to rely upon, estimate what you will spend.

Divide the total indirect costs (overhead) by the total direct costs (total cost of sales) to obtain an overhead cost factor.

Sum of all Annual Overhead Costs

Overhead Cost Factor = $\frac{\text{Sum of all Annual Overhead Costs}}{\text{Sum of all Annual Direct Costs}}$

Example: Total Annual Overhead Costs = 40,000
 Total Annual Direct Costs = \$200,000
 \$40,000 divided by \$200,000 = 0.2

The overhead factor you would use for an "average" job in this example is 0.2 (20%). Multiply your direct job costs by the appropriate cost factor from the table.

Cost Factors

% Cost	Cost Factor
10 %	.111
15 %	.176
20 %	.25
25%	.333
33%	.50
50 %	1.00

You do not simply multiply by 0.2 because that would only be 20% of your direct cost and not of total cost as illustrated below. You would be underestimating overhead by \$400.

Direct Cost	Total Cost
\$10,000 x 0.2 = \$2,000	\$ 12,000 x 0.2 = \$2,400

Be aware that each job has different requirements, and overhead should be allocated differently for a job that has higher equipment or material costs than the typical labor intensive job.

Reprinted from *Green Business Reporter*, Vol: 6, No: 1, February 1994.

CHIPCO ALIETTE/FORE WP TANK-MIX FOR SUMMER DECLINE SYNDROME

Paul Vincelli
**University of Kentucky, Cooperative
Extension**

Golf course superintendents have been asking questions about the tank-mix of Chipco Aliette WDG and Fore WP applied on a biweekly basis.

In recent studies on soil-based creeping bentgrass greens in North Carolina, Dr. Leon Lucas has shown significant improvements in summertime turf quality with the combination of these fungicides over that observed with either fungicide alone, or with other combinations such as Aliette/Prostar. In Dr. Lucas' studies, an interaction of *Pythium* and *Rhizoctonia* fungi is implicated, and the problem is referred to as "summer decline syndrome", a catch-all term describing a disease complex. Other researchers in the Southeast have shown that the combination of Aliette WDG and Fore WP provides good control of brown patch, and a synergism between these products appears to be involved.

This research is interesting and exciting. Anything that improves the quality of creeping bentgrass greens in the summer gets my attention, as well as that of golf course superintendents. We are testing the Aliette/Fore combination in Kentucky this year and will discuss results at meetings this fall and winter. However, for those considering this combination for this summer, I have studied the available data and offer the following interpretation.

Creeping bentgrass maintained at 5/32" or less under high temperatures is under stress; all a superintendent can hope to do is minimize that stress. Under these conditions, infections occur and symptoms develop in turf that would not become diseased under more favorable growing conditions. Anything that can reduce some of

these subclinical infections may result in better quality during the summer. Turf quality in a creeping bentgrass under putting green management was improved using the Aliette/Fore combination; the reasons for the improvement are not fully documented at this time.

Many Kentucky superintendents do a fine job of maintaining turf quality despite stressful growing conditions. For these superintendents, there is no harm in using this combination, and it will provide control of brown patch and cottony blight; but neither is there a compelling reason to use it this year, while our tests are underway.

For golf courses that have a history of deterioration of greens quality under stressful conditions in July and August, the Aliette/Fore WP combination may have a place, which is the recommendation I issued when the combination was labelled last year. If I were responsible for such a course, I would try it under local conditions. Keep in mind that in the North Carolina studies, two preventive applications in succession were necessary before differences were detected. Also, the flowable formulation of Fore is not labeled for this combination because of physical incompatibility with Aliette WDG. Another caution is to not rely on these fungicides exclusively for summertime disease control. Neither compound has a history of fungicide resistance. However, I wouldn't tempt fate, particularly with a systemic like Aliette. Repeated, exclusive use of any product seems like a poor management strategy.

In my opinion, the improvement in turf quality in some of the Aliette/Fore studies is not a simple case of controlling a single, well-defined disease, like brown patch. I believe there is more to it, and that several causal agents may be involved in the symptoms observed in certain studies. We are looking forward to our own tests with the combination this year.

Recognize that the Alette/Fore combination shouldn't be considered a magic elixir for stress-related problems on creeping bentgrass putting greens in Kentucky. There are plenty of noninfectious factors that can create stressful conditions and cause a general decline in turfgrass quality.

Reprinted from Kentucky Cooperative Extension Newsletter.

THREE SHADE TREES TO GROW AND SELL

A recent article in *Nursery Manager* suggests three shade trees that should be promoted in the nursery trade. I agree and thought I'd reiterate David Morgan's suggestions here.

***Metasequoia glyptostroboides* Dawn Redwood**

The dawn redwood, once thought to be extinct until it was rediscovered in China in 1941, has a striking appearance, rapid growth rate and adaptability to many soils and climates. This deciduous conifer has light green leaves in spring that turn dark green in late summer, giving way to creamy-gold, often pinkish, and finally shades of amber in late fall. Dawn redwood has a reddish brown bark color and develops deep fluted structures around the trunk with age (referred to in one reference as "armpits").

Few insect or disease problems plague dawn redwood. It is easily transplanted and does best in moist, well-drained, slightly acid soils up to zone 5. But it will survive in drier and colder climates as well.

Two cultivars are in the trade. 'National,' released by the U.S. National Arboretum in 1948, has a narrow-pyramidal habit; and 'Sheridan Spire' is a more upright specimen than the species.

***Cercidiphyllum japonicum* Katsura tree**

Katsura is a fast-growing (up to 18 inches per year) tree with a graceful, spreading habit. Its heart-shaped leaves open with a reddish tinge around the margin, change to bluish green in the summer and turn yellow to apricot in the fall. Katsura is pyramidal in youth and develops a rounded habit with maturity. Mature height ranges from 50 feet to 100 feet (in the wild). Katsura is sensitive to drought and should be watered during establishment and subsequent droughty summers.

A cultivar, 'Pendula,' is an attractive weeping form that may reach 25 feet in height.

***Tilia* species The lindens**

The genus *Tilia* includes a group of shade trees that share some outstanding traits. They are stately, long-lived, have great fall color, and are tough enough to perform well as street trees. In mid-summer their flower scent sweetens the air around any landscape, the odd, penulous fruit provides an ornamental quality, and their fine-textured, heart-shaped leaves soften the harshness of a hot summer day. Here are nine lindens available in the trade:

Tilia americana 'Redmond' grows rapidly to 35 feet. It has the largest leaves of the linden cultivars resulting in a coarse appearance.

Tilia americana 'Legend' has clean glossy leaves and bright vermilion winter buds and twigs.

Tilia cordata 'Chancellor' is a tight, symmetrical tree, well-adapted to street tree use.

Tilia cordata 'Corinthian' is the narrowest of the *T. cordata* cultivars. Small, deep green leaves provide a delicate appearance.

Tilia cordata ‘Glenleven’ is the most vigorous *T. cordata* cultivar. Its form is pyramidal, open and informal.

Tilia cordata ‘Greenspire’ has a strong central leader, very uniform branch arrangement and a symmetrical, pyramidal form.

Tilia cordata ‘Olympic’ is a fast-growing linden.

Tilia x euchlora or the Crimean linden has glossy medium green foliage in summer, turning to bright yellow in the fall. Winter interest is provided by golden green twigs.

Tilia tomentosa ‘Sterling’ is a vigorous tree with a neat, symmetrical shape. Its tomentose leaves make it resistant to Japanese beetle feeding.

HARDY LANDSCAPE PLANTS RESEARCH CENTER

**Janet L. LaBarre
Center for Development of
Hardy Landscape Plants**

How would you like having the top horticultural researchers at over 70 institutions world-wide working on developing new cultivars for your nursery trade? What if I said you could hire these people for much less than you could pay a part-time seasonal employee? That, essentially, is what the Center for Development of Hardy Plants is all about. Started in 1990 by Dr. Harold Pellett, the Center coordinates research from around the U.S. and internationally to breed and release exceptional new plants for use in the landscape. Traits like insect and disease resistance, poor, compacted soil and pollution tolerance, all season interest, and smaller stature are things the Center is breeding for through its programs. Plants that are new, different, and grab a customer’s attention, then reward their purchaser with stellar, low maintenance performance are in the works right now.

New and exciting things are happening at the Center for Development of Hardy Landscape Plants! Expanded membership categories are now available with some really unique benefits. The Center is a national and international non-profit organization dedicated to research and development of tough, stress-tolerant, attractive plants for the landscape. Exactly the kind of plants nurseries, garden centers, landscapers, and homeowners need.

Supporting the Center is like buying a high interest rate long-term CD: the big payoff is a few years down the road, but you’re investing in your future. Current projects which could soon be money in the bank for you include development of tough little ornamental pears with big fall color; small ornamental maples; and a *Maackia*

tree, which has summer bloom, tolerates poor compacted soils, fixes nitrogen, and has great bark for winter interest. Many more projects are planned as fundraising continues. We need your support. Become a member and have your associates become members!

An immediate benefit of membership is the timely and informative newsletter. A recent issue contained preliminary data on how winter hardiness of certain species can be significantly reduced by pruning at certain times of the year. The practical side to this would be knowing that early or late spring pruning is the best time to avoid reducing winter hardiness. Other articles discussed increasing hardiness through watering techniques, and compared maple cultivars for

drought tolerance, with some surprising results. You get current research and results as they happen, not two years down the road after the findings are presented and published. You can share this information with your colleagues and enhance your knowledge in the process. People enjoy hearing about new and helpful things!

Will you please support us? Let us know! Your support of the Center is greatly appreciated and very beneficial for the industry. Thanks!!

Below is a membership application for the Center for Hardy Plants.

Membership Categories for the Center for Development of Hardy Landscape Plants:

<u>Level</u>	<u>Amount</u>	<u>Benefits</u>
Basic	\$25 to \$59	Newsletter
Standard	\$60 to \$149	Newsletter plus permission to copy & distribute to group/club members.
Premium	\$150 to \$499	Previous benefits plus a full color gardening calendar.
Supporting	\$500 to \$999	Previous benefits plus participation in the name selection of a new cultivar.
Sustaining	\$1000 plus	Previous benefits plus an original work of seed art OR an experimental plant to grow out and evaluate in your own garden. (Circle one)

Matching contributions!! Does your employer provide matching funds for your non-profit contributions? Please let us know!

Company name & address: _____

Endowment Fund! I want my \$\$ to support the Center in an ongoing way. Please accept my additional contribution of \$ _____

Name: _____

Company: _____

Address: _____

_____ Zip _____

Telephone: _____

Please send your tax-deductible contribution to: Center for Development of Hardy Landscape Plants, P.O. Box 39, Chanhassen, MN 55317, Phone:(612) 443-2460 x 735

PESTICIDE NEWS

Insecticides:

METASYSTOX-R (oxydemeton-methyl) from Miles has requested EPA to voluntarily cancel all uses due to the costs of re-registration.

BACK-OFF I (Metarhizium anisopliae) from Eco Science plans to register this new biopesticide for the control of whiteflies and aphids on greenhouse-grown ornamentals and vegetables. It is being looked at for nursery and other crops.

TURPLEX (azadirachtin) from Scotts is a botanical insecticide from the neem tree. It was introduced in 1993 on a limited basis, but Scotts is now making the insecticide more widely available. It is labeled for the

control of sod webworms, armyworms, cutworms, whiteflies, thrips, fungus gnats, and caterpillars in turfgrass, trees, shrubs, and other outdoor ornamentals. This insecticide has systemic as well as contact properties.

MERIT (imidacloprid) from Miles is registered for use on white grubs, billbugs, adelgids, aphids, beetles, lacebugs, leafhoppers, leafminers, leafhoppers, mealybugs, sawflies, scale, whiteflies, thrips, and pine tip moth larvae on turfgrass and outdoor ornamentals. The insecticide has both contact and systemic properties. It will be registered soon as MARATHON by Olympic for use in greenhouses.

ASTRO (permethrin) from FMC is registered for use on turfgrass and ornamentals in nurseries, sod farms, greenhouses, interiorscapes, and home landscapes. It is available only to commercial applicators but is a xylene-free, nonrestricted-use pyrethroid insecticide.

TRIUMPH (isozofos) from Ciba has reduced rates for application for surface turfgrass-feeding insects and there is a change in the application equipment statement on the label.

SCIMITAR (lambda-cyhalothrin) from Zeneca is registered for use by commercial applicators on turfgrass and ornamentals insects for application to home landscapes.

PT 1325 ME DURAGUARD (chlorpyrifos) from Whitmire Research Laboratories, Inc. is now registered for use on Western flower thrips, aphids, mealybugs and other ornamental pests. Available in either quart or gallon packets, the product's active ingredient is a micro-encapsulated form of Dursban.

AWARD (fenoxycarb) from Ciba will now be available in 1 lb. jugs for the turf and ornamental market.

DEADLINE from Valent USA Corp. is a metaldehyde formulation and is now available in a granular formulation for snail and slug control. Deadline is designed to work as a bait, drawing the pests away from plants.

Fungicides:

3336WP from W.A. Cleary has expanded horticultural use for nursery, greenhouse and landscape sites on annual and perennial flowers, ground covers, plus deciduous and evergreen trees and shrubs. Some diseases affected by this product are: Anthracnose, Ascochyta Leaf Blight, Black Spot of Rose, Botrytis Flower Blight and Tip Blight of Pine.

ALIETTE from Rhone-Poulanc Ag Co. is a fosetyl-Al systemic fungicide and has added control of downy mildew on landscape, field-grown and container-grown roses to its label.

CONSYST from Regal Chemical Co. has been approved by the EPA for a non-restrictive label. This new all-purpose, broad-spectrum fungicide with both contact and systemic action is labeled for turf, ornamental trees, shrubs and flowering plants.

TRUBAN 5-G from Grace-Sierra is an ethazol-based soil fungicide and now is packaged in 40-pound bags for control of damping off and root and stem rot diseases caused by pythium and phytophthora in greenhouse and nursery crops. It is available in three formulations: wettable powder, emulsifiable concentrate and granular.

PROTECT T/O from W.A. Cleary Chemical Corp. is a new formulation of this mancozeb fungicide for the turf and

ornamental market. Product is labeled for control of many common fungal diseases of ornamentals, including black spot on roses, dogwood anthracnose, and rhododendron and azalea petal blight.

Herbicides:

PENDULUM WDG from American Cyanamid Co. is a pendimethalin-based herbicide which is now available in water-soluble bags. The packets are made of an inert ingredient that is designed to dissolve quickly in the mixing tank.

Other:

MAGIC CIRCLE DEER REPELLENT from J.C. Ehrlich Co. is a bone oil product and will not be re-registered due to cost considerations. The sale and distribution of the product will continue until Nov. 23; existing stocks may be used until exhausted.

HINDER from Uniroyal Chemical Co. Inc., is a fatty-acid deer and rabbit repellent, which has changed its signal word from "warning" to "danger" due to possible eye irritation.

The following changes are proposed for pesticide record keeping regulations.

1. The definition of a medical emergency will be changed from:
“. . . injuries or illnesses which require immediate medical attention to prevent life threatening or disabling conditions.”
to:
“. . . a situation that requires immediate medical treatment or first aid.”
2. The information recorded for spot applications would change from the current interpretation in which an applicator does not need to give exact locations for a spot treatment to recording spot applications in the same manner as other applications.
3. The time for making an official record will change from “30 days” to “7 days.”

RESEARCH BRIEFS

The following innovative irrigation techniques can be used to reduce water usage in nursery production:

1. Reservoir and recycling system. Channel irrigation runoff to sedimentation pits. Use nets, screens and settling to remove coarse materials. Run the water through sand filters. Pump water into a reservoir. Also modify irrigation practices by shortening irrigation time and using drip irrigation. Annual water use decreased by 70% and water runoff decreased by 88%.

2. Improved recycling system. Concrete-lined channel to decrease runoff seepage into soil. Organize nursery based on container size and use overhead irrigation for small containers (<4 liter). Capture runoff water and hold in a reservoir. Use drip irrigation for larger containers--runoff practically eliminated. Use automatic controllers to improve control over run times. Check moisture before irrigation. Check and replace nozzles.

3. Pulse irrigation. Apply a small amount of water five to six times daily at hourly intervals. Use a computer-controlled system for irrigation controllers. All irrigation is applied by a drip system. (J.N. Kabashima)

Preceding research brief excerpted from HortScience, Vol 28 (4).

A survey of retailers opinions about marketing manure and organic fertilizers revealed that retailers believe the manure and organic fertilizer market is at a crucial stage where increased sales depend on improved marketing. While many consumers seem to be interested in buying organic products, they have limited knowledge and experience with manure and organic fertilizers. Retailers desiring to improve their sales of these products must be prepared to

inform customers about the qualities of available products. Consumers particularly require information on the long term effectiveness of manure and organic fertilizers to counter their desire for fast results. (J. Kline, T. Weaver)

Preceding brief excerpted from American Nurseryman, February 15, 1994.

In a study comparing green ash transplanted as bag-grown, B&B and bare-root harvested trees, there was no difference in survivability or growth due to harvest method. Fabric bags increase production and transplanting costs and offer no advantage for easily established landscape species like green ash. There may be an advantage with difficult-to-transplant species but few studies confirm this. (D.L. Hensley)

Overfertilization of evergreens by homeowners may be a landscape problem. There was no significant injury to arborvitae, juniper or white pine when fertilizer was applied at the manufacturer's recommended rate even on hot sunny days in mid-July and early August. Injury resulted on arborvitae at twice the recommended rate (slight), four times the recommended rate (moderate) and at eight times the recommended rate (severe). The junipers and white pine did not exhibit injury symptoms until eight times the recommended rate was applied. (J.R. Heckman)

Preceding two research briefs excerpted from American Nurseryman, March 15, 1994.

A study of weed control in the following container-grown herbaceous perennials (black-eyed Susans, lance-leaved coreopsis, shasta daisy, purple coneflower and blanket flower) revealed that Dithiopyr, pendimethalin and prodiamine provided excellent control of spotted spurge and yellow wood sorrel with little to no injury. DCPA, oxadiazon and metalochlor were tolerated

by the treated species but provided less weed control. Oryzalin, isoxaben + trifluralin and napropamide caused unacceptable injury. (J.F. Derr)

Preceding research brief excerpted from HortScience, Vol 29 (2)

A spike formulation of paclobutrazol (as compared to a drench) has potential to provide adequate size control for floriculture crops with the possible exception of rapidly developing crops, such as caladiums. (J.E. Barrett, C.A. Bartuska and T.A. Nell)

Preceding research brief excerpted from HortScience, Vol 29 (3).

When poinsettias were fertilized with a variable rate of nitrogen linked to the N-accumulation pattern of the crop, N recovery was 58% as compared to 38% when a constant application rate of 200 mg N/l was used. With the variable rate, 41% less total N was used and there was no difference in size or quality. N accumulation increased to a maximum by 50-60 days after potting and then N demand decreased. (M.A. Rose, J.W. White and M.A. Rose)

Paclobutrazol can decrease the Turcam phytotoxicity on a sensitive species (*Salvia*). Previous work showed the same effect with Orthene and insecticidal soap. The mechanism of protection is unknown but the greatest protection occurs when paclobutrazol is applied four days before the insecticide treatment. (J.G. Latimer and R.D. Oetting)

In the home environment, potted miniature roses yellow prematurely. Flower buds and leaves abscise early and flower buds fail to open. BA decreased leaf yellowing and STS promoted flower display. These two treatments in

combination one day before shipping can greatly enhance the quality of potted miniature roses. (S.A. Tjosvold, M-J Wu and M.S. Reid)

Preceding three research briefs excerpted from HortScience, Vol 29 (4).

A single spray (125-500 ppm) of Promalin or two sprays (250-1000 ppm) seven weeks apart increased the numbers of primary and secondary runners produced by *Vinca minor*. The result is less pruning required to produce well-branched marketable plants thus saving labor. Results with Atrimec were inconclusive. (J.T. Foley and G.J. Keever)

Orthene was the most cost effective treatment for azalea lace bug (ALB). Emergence of *Anagrus takeyanus*, an egg parasitoid of ALB, was observed in all treatment and increased during the study period suggesting that the natural occurrence of this beneficial insect may compliment insecticide use. (J.A. Belsdon, S.K. Braman, A.F. Pendley and K.E. Espelie)

Rooting percentage of 'Hino Crimson' azalea was lowered when media was treated with Rout 3G prior to sticking cuttings. While rooting percentage was not affected, root quality was reduced when 'Trouper' azalea and 'August Beauty' gardenia were stuck in herbicide-treated media (Rout 3G, OH--2 3G, Snapshot 2.5TG and Southern Weed Grass control 2.68G). Sticking cuttings about one inch into the medium compared to 1/2 inch resulted in improved root development when Rout 3G and Snapshot 2.5TG herbicides were used; however, even when stuck deeper than normal, these herbicides reduced root development when compared to untreated controls. (C.H. Gilliam, D.J. Eakes and J.W. Olive)

Many nurseries choose to hold containerized liner stock for extended periods rather than

transplanting into larger containers. Delayed transplanting of liners in small pots in this study resulted in root circling, delayed root development, and reduced shoot growth. Propagation in small containers requires early transplanting for maximum shoot growth. Growers planning to hold liners for extended periods of time should consider using larger pots than are commonly used during propagation, or transplanting into larger containers soon after propagation. (P.R. Knight, D. J. Eakes, C.H. Gilliam and K.M. Tilt)

Primo (CGA 163935) applied at .36 lb/A eliminated 2 to 3 mowings of K-31 tall fescue turf in Georgia. If tall fescue is not to be mowed in a rough turf, Embark (mefluidide) applied at .38 lb/A will suppress seedheads longer than Primo. But treatment with Embark resulted in unacceptable quality of mowed turf during the study. (B.J. Johnson)

Evaluation of juniper resistance to bagworm revealed no completely resistant cultivars but 'Expansa,' 'Hibernica,' 'Wichita Blue' and 'Keteleeri' were more resistant than the highly susceptible 'Broadmoor,' 'Emerald Isle,' 'Blue Pacific,' 'Blue Rug' and 'Blue Mat.' (M.P. Johnson, D.A. Potter and G.S. Gilmore)

Of the 24 cultivars of *Malus* spp. evaluated, 'Adams,' 'Candied Apple' and 'Sugar Tyme' were the most resistant to defoliation by gypsy moth, fall cankerworm and eastern tent caterpillar. 'Robinson' and 'Red Jewel' were highly resistant to rose chafer and apple-and-thorn skeletonizer damage. (D.R. Smitley and N.C. Peterson)

'Skyline' and 'Trueshade' honeylocust are less susceptible to thyronectria canker disease than other cultivars studied. Thyronectria infection did not predispose trees to borers. Tree vigor was involved with infection and warrants further study. (D.A. Potter and J.R., Hartman)

Twenty percent composted poultry litter (CPL) amendment (by vol) modified all measured chemical properties of the amended loamy sand soil to levels within the range specified for landscape plants. In addition, available water capacity was increased about 0.5 times over unamended soil within the upper 24 inches, which contains the majority of the root systems of most landscape plants. Available water capacity was increased with only a 6 to 9 % decrease in air space. This data supports the use of composted poultry litter to improve the chemical and physical properties of a loamy sand soil. It would be possible to apply higher rates, however, the increased pH and decreased air space might become limiting for optimal plant growth. (S.L. Warren and W.C. Fonteno)

Red and scarlet oak liners grown in copper-treated containers had greater regrowth after transplanting than liners produced in untreated containers, whether root pruned or not before transplanting. Root malformations developed in untreated containers left uncorrected at planting are often the cause of poor performance after transplanting. Production in copper-treated containers at the early stages of plant development could correct this problem. (D.K. Struve)

Preceding ten research brief excerpted from J. Environ. Hort., 11(4). December 1993.

Overhead irrigation of transplanted bare-root trees before budbreak increased the survival and plant quality of the desiccation-intolerant Yoshino cherry. There was no advantage to misting desiccation-tolerant Norway maple. (R.M. Bates and A.X. Niemiera)

A South Carolina study of herbicide levels in nursery containment ponds provides evidence that herbicides from OH-2 and Rout formulations do not accumulate in containment pond water or

sediment with repeated applications. The potential movement of herbicides from the nursery site thus posing an environmental problem is remote when runoff water is collected in containment ponds. (N.D. Camper, T. Whitwell, R.J. Keese and M.B. Riley)

Rank shoot growth of butterfly bush necessitates frequent pruning during container production to produce quality, marketable plants. A single foliar application of Cutless at 62.5 (0.017 oz cutless 50WP/gal) provided short-term control of shoot growth, with no effect on flowering time, inflorescence number or inflorescence size. Rates of 125 or 250 ppm Cutless provided growth control for at least 120 days with no effect on flowering time, inflorescence number, inflorescence index, or shoot length the following season. Rates of 500 ppm or higher resulted in prolonged shoot retardation and reduced inflorescence numbers and size; these rates were considered unacceptable. Cutless may provide nurserymen with a labor-saving tool for managing a vigorous species. (A.J. Keever and C.H. Gilliam)

Cold hardiness of crape myrtle and leyland cypress was greater for plants established in the landscape than for plants growing in nursery production conditions (in containers). Cold hardiness was determined with four inch stem tips in the lab. This suggests that practices such as reducing the amount of fertilizer and/or water used in the production stage may increase fall cold hardiness or the need to offer earlier winter protection for these plants if high fertilization rates are used. (O.M. Lindstrom, M.A. Dirr)

Most hosta cultivars produce very few offsets per year, which limits the rapid introduction of new cultivars at affordable prices for growers without tissue culture capabilities. The synthetic cytokinin, BA, applied as a foliar spray or medium drench, can stimulate offset development leading to more rapid multiplication. Optimal

foliar spray rates of BA were 2000 or 3000 ppm and drench rates were 20 or 40 mg a.i./5" pot. Although the higher rates of BA applied caused foliar necrosis shortly after application, following a period of dormancy, offsets appeared normal, survived division and developed extensive root systems. (G.J. Keever)

A study of consumers in Kansas revealed that 75.7% of respondents said they would make their next plant purchase from a garden center. But 40% of these same consumers purchased almost 40% of their plants from other retail outlets. Opportunities for increased plant sales to an existing customer base are going unmet. Of all the purchase criteria, quality was identified to be the most critical factor in the purchase decision. Trained, professional sales staff and a large selection of plant material were also important to the respondents. It is the authors opinion that non-traditional nursery plant retailers have begun to address these criteria. (H. Khatamian and A. Stevens)

Viburnum 'Emerald Triumph' has been released through the royalty program of the Minnesota Nurserymen's Research Corporation. 'Emerald Triumph' viburnum has a dense, rounded form that becomes 6-8' high and wide at maturity. Dark green, glossy leaves remain on the plant well into autumn. 'Emerald Triumph' viburnum has creamy white flowers, borne in slightly rounded cymes. Fruit changes from green to red and finally to black. Red fruit is effective for three to four weeks. 'Emerald Triumph' is cold hardy to Zone 4a and has no serious insect or disease problems. Growers interested in producing this cultivar can contact Mr. Don Selinger, Minnesota Nurserymen's Research Corporation, 1325 Bailey Road, St. Paul, MN 55119.

Preceding seven research brief excerpted from J. Environ. Hort., 12(1). December 1993.

Weed Control Suggestions for Christmas Trees, Woody Ornamentals, and Flowers. This publication by Walter A. Skroch may be obtained by sending a check to North Carolina Agricultural Foundation for \$6.00 per copy (\$5.00 for 10 or more) to Dot Duke, Box 7609, NCSU, Raleigh, NC 27695-7609.

The 1994 New England Management Recommendations for Insects, Diseases and Weeds of Shade Trees and Wood Ornamentals is now available. This manual for landscape, shade tree and ground management professionals offers the latest info on virtually all the insects, diseases and weeds or woody plants in New England and includes the current and legal listings of chemical compounds labeled for the management of these pests. To order, send a check for \$20 payable to the University of Massachusetts, Bulletin Center, Cottage A, Thatcher Way, UMass, Amherst, Massachusetts 01003 or call (413)545-0895.

Recycling and Resource Conservation: A Reference Guide for Nursery and Landscape Industries. The Pennsylvania Nurserymen's Association has announced the availability of this new publication on composting and other resource conservation practices. This publication encompasses all areas of composting landscape debris, recycling plastics, reducing and recycling water in greenhouses, and more efficient use of fertilizers and other chemicals in the production of nursery crops and landscaping. For more information contact the Pennsylvania Nurserymen's Assoc., 1924 North Second Street, Harrisburg, PA 17102 or call (717)238-1673, FAX:(717)238-1675.

Pricing. ALCA is pleased to announce the release of this "How To" book for owners, managers or anyone else responsible for decisions that determine prices charged for products and/or services in the green industry. To order, mail check (ALCA members \$30 and non-members \$50) to ALCA, Pricing, 12200 Sunrise Valley Dr., Suite 150, Reston, VA 22091; or for Visa or MasterCard orders, FAX:(703)620-6365, Tel:(800)395-2522 or (703)620-6363.

The Users Reference Guide to Pesticides. Thomson Publications announces this new book by W.T. Thomson. This 200 page publication was designed for the person who uses or recommends pesticides on a day-to-day bases. It is a guide to the formulations, tank mixes, adjuvant

recommendations and compatibility's of pesticides used in the US. Products registered in the US are listed by generic name followed by the different formulations. Book is available for \$27.95 plus tax. Contact Thomson Publication, P.O. Box 9335, Fresno, CA 93791; Tele:(209)435-2163, FAX:(209)435-8319.

Who's Who in Landscape Contracting. This a 1994 membership directory from The Associated Landscape Contractors of America (ALCA). It is a valuable reference source for landscape contractors, landscape designers, building owners and managers, facilities managers, and contains important industry related contacts. To obtain a copy-contact ALCA, 12200 Sunrise Valley Drive, Suite 150, Reston, VA 22091, Tel:(703)620-6363 or FAX:(703)620-6365.

Environmental Guidelines For Golf Course Maintenance Facilities. This is a free booklet from RFG Environmental Systems, Inc. and member of the RFG Environmental Group, West Palm Beach, Florida. The subjects covered include: EPA laws, maintenance shop housekeeping, mix and load operations, storm water run-off, managing hazardous waste on site and pollutions solutions. For a free copy, contact RFG Environmental Systems, Inc. 3875 Fiscal Court, West Palm Beach, Florida 33404, Tel:(800)842-7771 or (407)848-1826.

Composting Handbook and Holly Care booklet. These are available to dealers through The Espoma Company's buying program or earned cooperative advertising dollars. Compost material characteristics, how to compost, and the benefits of composting are just a few of the topics offered in the Composting Handbook. The Holly booklet provides a brief history of the holly tree, plus planting and feeding instructions. For more information write 6 Espoma Rd., Millville, NJ 08332.

ALCA Publications Catalog. Features over 50 publications designed exclusively for the green industry. This publication includes everything from managing your finances in a tough economy to creating a safer work environment & marketing your valuable services. For a complementary copy of ALCA's publications catalog contact ALCA, 12200 Sunrise Valley Dr., Suite 150, Reston, VA 22091, Tel:(703)620-6363, FAX:(703)620-6365.

Hort Impact. A new eight-page monthly publication for home gardeners from The University of Connecticut. This publication brings answers and information to home gardeners as well as promoting environmental responsibility. One-year subscription is \$10. Checks, payable to University of Connecticut, may be sent to: Patsy

W. Evans, 1376 Storrs Rd.,U-67, University of Connecticut, Storrs, CT 06269-4067.

Directory of State Regulators. Offered by The Composting Council, an Alexandria, VA-based group of composting supporters, this publication covers all 50 states. The list includes name, agency, address, phone and fax numbers of state compost regulators for agriculture, solid waste and sludge. List is available from the council for \$15 (\$10 for members). Contact Randy Mond (703)739-2401 or FAX:(703)739-2407.

Conservation Trees For Your Farm, Family & Future. This free booklet is available to assist in planning tree planting. Includes features outlining 12 productive uses of trees and easy-to-understand descriptions to guide tree planting and care. For your free booklet, send name and address to: Conservation Trees, The National Arbor Day Foundation, Nebraska City, NE 68410.

AAN Compliance Guide to the Family & Medical Leave Act. This guide answers a series of commonly-asked questions and takes the employer step-by-step through the decision-making process of handling a leave request. The guide is available from AAN, 1250 I Street, NW, Suite 500, Washington, DC 20005 for \$20 plus \$2.50 for shipping and handling (members) or \$40 plus \$2.50 for shipping and handling (nonmembers).

June 1 - July 27 - IPM Workshop Series. University of MA Extension, Amherst. June 1, July 27 - Eastern MA Extension Center, Waltham/June 9 - Amherst campus. Beneficial Insects and Mites at Work: June 23 - Amherst campus/July 13 -Eastern MA Extension Center, Waltham/July 14 - Southeastern MA Agricultural Center, Wareham. Tel:(413)545-0111 or FAX (413)545-6555, or contact Kathleen Carroll, University of Massachusetts Coop. Extension System (413)545-0895.

June 9,10 - The Best Woody and Herbaceous Plants for Landscape Design seminar. Arnold Arboretum of Harvard University, Jamaica Plain, MA. Call (617)524-1718, Ext. 162 or FAX (617)524-1418.

June 17 or June 18 - Planting Trees For Performance: Techniques For Creating Successful Landscapes. Will be held in two locations: June 17-Morris Arboretum/ June 18-Medford Leas, Lewis W. Barton Arboretum, Medford, NJ. Tel:(215)247-5777, x-156.

June 21-22 - Pesticide Applicator Training Review Session. Delaware Fire School, Dover DE/ 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.

June 22 - Pesticide Applicator Certification Exam. Delaware Fire School, Dover, DE. Contact Larry Towle, 1-800-282-8685 for further information.

June 22 - Athletic Field Workshop, PA Cooperative Extension. Quakertown, PA. Contact Nncy Bosold (610)489-4315.

June 23 - Twilight Greenhouse Meeting. East Coast Growers/Atlantic Greenhouses, Pipersville, Bucks County, PA. Contact (215)345-3283

June 23-25 - Native Plants in the Landscape, Bringing it all Back Home: Ecology, Horticulture & Design. Millersville University, Millersville, PA. Contact The Continuing Education Office. Tel:(717)872-3742, FAX:(717)-871-2022.

June 26-28 - Seeley Conference: Harnessing the Forces Shaping Floriculture. Seeley Conference Committee,

Cornell Univ., Ithaca, NY. Cornell campus. Tel: (607)255-5113; FAX (607)255-4457 or (607)255-9998.

June 28, 30 - Field Days. E.C. Geiger Inc., Harleysville, PA: June 28 - E.C. Geiger Inc., Harleysville, PA/June 30-Al Saffer Co., Brookhaven, NY. Tel:(215)256-6511 or FAX:(215) 256-6110.

July 9-13 -International Floriculture Industry Short Course. Cincinnati Convention Center, Cincinnati, Ohio. Contact Ohio Florists' Association (614) 487-1117, FAX(614)487-1216.

July 10 - ALCA'S Certified Landscape Professional & Certified Landscape Technician Exams. Cincinnati, OH with the Ohio Short Course. Tel:(703)620-6363, FAX:(703)620-6365.

July 12 - Hampton Roads Agricultural Experiment Station Annual Nursery Field Day, Virginia Beach, VA. Register by July 1 and save. Contact Dr. Bonnie Appleton (804)363-3906, FAX(804)363-3950.

July 12-16 - AAN Convention, Baltimore, MD: (with MANTS); Tele:(202)789-2900.

July 13 - PA/DE Garden Center Bus Tour. Tour will include four sites in northern New Jersey. To register, contact Susan Barton (302)831-2531 or Russ Powell (215)345-3283.

July 13, 14 - PA Pesticide Institute. PA Nurserymen's Assn. The Embers Convention Center, Carlisle. Tel:(717)238-1673 or FAX (717)238-1675.

July 13-16 - AAN Convention. Baltimore Convention Center, Baltimore, MD. Contact AAN. Tele:(202)789-2900 or FAX:(202)789-1893.

July 14-16 - Summer MANTS. Baltimore Convention Center, Baltimore, MD. Contact Carville Akehurst. Tele:(301)256-6474.

July 20-22 - Greenhouse Systems; Automation, Culture, and Environment International Conference. Hyatt Regency Hotel New Brunswick, NJ. Conference brochure are available from NRAES, Tele:(607)255-7654 or FAX:(717)255-4080.

July 20-23 - Landscaping with Native Plants. Western Carolina University, Cullowhee, North Carolina. Contact Sue Dietz (704)227-7397.

July 21-22 - LCA-MD-DC-VA Summer Conference. Tele:(301)948-0810.

July 21-30 - Delaware State Fair, Harrington, DE. Contact Dennis Hazzard, (302)398-3269 for further information.

July 26 - 28 - Penn Allied Nursery Trade Show. PA Nurserymen's Assn. Valley Forge Convention Center, King of Prussia, PA. Tele:(717) 238-1673 or FAX (717)238-1675.

July 27-29 - Summer convention and field days. American Sod Producers Assn. Newport Islander Doubletree Hotel, RI. Tel:(708)705-9898 or FAX:(708)705-8347.

July 27 - Montpelier Ground and Garden Symposium, Orange County, VA. Call (703)672-2728.

July 27 - 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.

July 28 - 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.

July 29 - 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.

July 31 - August 6 - Perennial Plant Association Symposium, Philadelphia, PA. Contact Dr. Steven Still (614) 771-8431.

August 4-7 - Out of the Classroom ... Into the Garden, An International Symposium On the Prepared Outdoor Learning Environment. The Doubletree Conference Center, Arlington, VA. Contact (410)320-5094.

August 10 - Farm and Home Field Day. University of Delaware Research & Education Center, Georgetown, DE. Contact Mark Isaacs, (302)856-7303 for further information.

August 16-17 - Ornamental Horticulture Short Courses. Poinsettia School. Fischer Greenhouse, University of Delaware. Tel:(302)831-2531 or FAX (302)831-3651.

August 16, 18, 23, 25- Ornamental Horticulture Short Courses. Herbaceous Landscape Plants. Fischer

Greenhouse, University of Delaware. Tel:(302)831-2531 or FAX (302)831-3651.

August 17 - Delaware Summer Landscape Expo, Apgar Turf Farm, Smyrna, DE. Contact Linda Pevey (302) 629-0329

August 18-19 - "A Stewardship challenge for the 90's Deer, Gardens and the Natural Landscape" - 1994 Northeast Regional Meeting, American Association of Botanical Gardens and Arboreta, Frelinghuysen Arboretum, Morristown, NJ. Contact Helen Hesselgrave or Helen Mageau (201)326-7600 or (201)326-7623, FAX (201)644-2726.

August 18, 31 - PA Landscape and Nursery Trade Show and Conference. PA Nurserymen's Association. Aug. 18-West, ExpoMart, Monroeville/Aug. 31-East, Days Inn Conference Center, Allentown. Tel:(717)238-1673 or FAX:(717)238-1675.

August 24, 29, 31- Ornamental Horticulture Short Courses. Lawn Establishment and Maintenance. Research and Education Center, Georgetown. Tel:(302)831-2531 or FAX (302)831-3651.

August 24 - 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.

August 25 - 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.

August 26 - 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.

August 27 - A Native Plant Seminar &...Featuring Nationally Recognized Speakers. Irvin Natural Science Center. On the campus of St. Timothy's School, Stevenson, MD, one mile north of Baltimore Beltway Exit 22 on Greenspring Ave. Tele:(410)484-2413.

September 13 - UDBG/D.A.N. Nursery Night. Research demonstrations, garden tour, dinner, and recommended plant distributions. Contact Susan Barton (302)831-2531.

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

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

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

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

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

WILDFLOWER FOCUS GROUP STUDY

We are convening two focus groups from within the nursery industry to evaluate the marketability of wildflower sod. Each focus group will meet for one evening from 6:00 PM until 9:00 PM. The evening will include a presentation on wildflowers and wildflower sod, a tour of wildflower sod demonstration plots, dinner and discussion lead by a focus group facilitator. If you are interested in participating in one of the two focus groups, please complete the information below:

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Phone _____

Type of Business _____

Any experience with wildflowers? (please describe) _____

Check the appropriate focus group meeting date for your company.

_____ Landscape contractors' focus group, July 27, Townsend Hall, U of D, Newark

_____ Landscape maintenance professionals' focus group, August 3, Townsend Hall, U of D,

Newark

Return this form to Susan Barton, Dept. of Plant & Soil Sciences, Townsend Hall, University of Delaware, Newark, DE 19717-1303, by July 10. You will be notified if you are selected to participate. Thanks for your interest!