

BULLETIN

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Industry Trends: Some Challenges and a Whole World of Opportunities

by Marvin Miller

The floriculture industry today is certainly at a crossroads at almost every level of the market channel. For the last several years, the growth rate of the industry at the grower level, as reported in the USDA's Floriculture Crops Summary, has been erratic at best, with the industry reporting its first decline in reported wholesale sales from 2002 to 2003. Though sales rebounded a year later, with a revised 4.0 percent growth from 2003 to 2004, the preliminary report for 2004 to 2005 growth is only 1.5 percent. Still, USDA reports the floriculture industry wholesale sales are at an all-time high \$5.363 billion. (Figure 1, page 7)

At retail, there is no doubt that a lot of folks are trying to determine what makes the consumer tick, as well as what makes sense for their particular operation. Florists and independent garden centers are probably under the greatest pressure to prove their worth to consumers. Garden centers are facing some of the same challenges florists first faced about 20 to 30 years ago when supermarkets entered the floriculture industry. With mass marketers competing with each other to offer what seem to be lower and lower prices, the

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Irrigation Automation: Looking at the Future

by Stephanie Burnett & Marc van Iersel

Editor's Note: This is the second of two articles about irrigation automation. The first appeared in the last issue.

In the previous issue of the *OFA Bulletin*, we took a look at different irrigation systems, and how you can reduce labor costs by automating watering in your greenhouse. Now we will take a look at a different aspect of automating irrigation: how do you decide when to water and how much water do you need to apply? If someone asks you how much water it takes to grow a particular crop, do you have a good answer? Probably

not! We know little more about crop water needs than whether a crop is drought-sensitive or drought-tolerant. There really is no good quantitative information on how much water plants need. One reason for this lack of information is that water has long been a relatively cheap and plentiful resource. However, that is rapidly changing. Population growth and increased urbanization has increased the demand for limited water supplies. The increased demand for water likely will result in a decrease in water availability for agricultural production, including greenhouses. In addition, over application of water can result in leaching and run-off of fertilizer.

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OFA Mission Statement

To support and promote floriculture professionals through lifelong learning, career enhancement, and public awareness.

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ofa Forum

Growers and Independent Garden Centers Have a Vital Marketing Message: Plants at Work, in the Home, in the Garden, and Beyond!

by MJ Gilhooley



The Branding Message that Really Matters

From the herbs we eat to the benefits of outdoor landscaping, plants are a fundamental aspect of human life. Every day more research becomes available about the essential values of flowers and plants. There is no limit to the potential audience for this message! It is extremely critical that we keep our customers aware that plants are significant when it comes to overall end-user health benefits (Figures 1 and 2).

The majority of Americans rate the health and safety of their families as a primary topic of concern. We certainly agree that plants and flowers work... in the yard, in the school, in the office, and even up in space. Working with Master Tag, Plants at Work has recently created a full line of POP merchandising and marketing materials to teach everyone, at every age,

everywhere, exactly how critical plants and flowers are to a healthy life.

The "more healthy, happy, and safe with plants" branding message, supported by vast scientific research, is a highly under-utilized "secret weapon" for enhancing grower sales, garden center messaging, and profits. Over this past year alone, writers from *Newsweek*, HGTV, The Gannett News Service, and *Readers Digest* have all felt the topic critical enough to feature. Perhaps the time is right for growers and garden center managers to make the most of the new Plants at Work POP and messaging materials to educate the customer about all that plants really have to offer.

The goal of the Plants at Work program is to let people know that the plants in their office and home are not only filtering the air, but decreasing stress, increasing productivity, and making them healthier, more balanced individuals. New posters, flyers and plant tags emphasize home, and work benefits, targeting garden center shoppers, employees and the general public. The durable, full-color tags feature statistics on plants' purification power and other health benefits. Along with the tags, Plants at Work is offering retailers banners and posters to promote the use of plants.

Why is the Positive Plant Message Important to Growers and Garden Center Management?

When customers are provided colorful, clear, and practical data about how live greenery benefits their loved ones, they are much more likely to make this the décor of choice, both inside and outside their properties. So, how exactly do we spread this message? There are several avenues to pursue.





Figure 1.




Figure 2.

1. Become a Plants at Work Sponsor and take advantage of all the sharp yet simple marketing materials they make available at discounted rates. To become a member just go to www.plantsatwork.org and click the “Become a Sponsor” tab. Additional resources can be found on the left side of the home page under the “Resources by Building Type” navigation area. You can find copies of a number of popular and trade articles that you can share with your customers. Make color copies of a few of these, frame them, and post them in your business.
2. With the help of new materials from Master Tag and Plants at Work, you can inexpensively add a few nice displays that highlight the benefits of particular plants or plants in general. Colorful displays with easy to read tips, strategically located in your garden center can enhance the plant volume per client, reinforcing that they are “doing the right thing” when purchasing lots of flowers and live greenery for their family. To order these items, download the Plants at Work Tool Kit from the “Become a Sponsor” page at www.plantsatwork.org.
3. According to Knight Ridder/Tribune Business News, more companies consider a public relations blitz a better tactic than ads. Draw from the vast amount of this positive “flower power” research and use it to become the “green” expert for your local media. Your community and metro papers actively seek health tips that are easy to put into play. Having one plant for

- every 100 square feet to absorb common household toxins is a perfect example. There are many others. Study them, write them, and contact the local media to share them.
4. Get everyone on board and become an active player in the important Plants at Work educational campaign. There is much to teach about the essential value of flowers and plants. There is no limit to the potential audience for this message! Help Plants at Work position the positive plant message, enabling a healthier America, and unlimited credibility and prosperity for the future of our industries.

In conclusion, many growers and garden center operators are a bit too close to the goods to realize the treasure they sell. They “can’t see the forest through the trees,” so to speak. When caught up with the day-to-day operations of running a business, we often forget our products benefit the health and well being of our customers. Getting back in touch with that message can provide the inspiration we’ve been looking for to push ourselves to the next level.

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Growers and Independent Garden Centers Have a Vital Marketing Message

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What Our Behaviors Show

1. At home, two-thirds of Americans cite gardening as their favorite hobby.¹
2. Once exposed to plant settings, test persons demonstrated more positive emotions such as happiness, friendliness, and assertiveness and less negative emotions such as sadness, anger, and fear.²
3. In a planted environment, we recover from stress more quickly than when in an unplanted environment.³
4. When plants are added to a space, we are more productive (test results indicate 12 percent quicker reactions on computer tasks) and less stressed (systolic blood pressure lower). We also report feeling more attentive when plants are present.⁴
5. When we shop in retail areas with “tree” versus “non-tree” environments, we visit more frequently, stay longer, rate the quality of the products 30 percent higher, and are willing to pay about 12 percent more for goods.⁵
6. Our problem solving skills, idea generation, and creative performance improve substantially in environments that include flowers and plants.⁶

What the Research Shows About Plant Benefits

1. A crossover study was conducted among 51 indoor spaces over a two-year period. When plants were included in the spaces the score sum of 12 health symptoms was 23 percent lower during the period when the participants had plants in their spaces.⁷
2. In a study of VOC absorption by commonly used indoor plants, the number one toxin, formaldehyde, was rapidly eliminated by rates as high as 1,800 micrograms per hour.⁸
3. In a study on the effects of healthy workplaces on well being and productivity, it was found that in offices without plants, workers stay home a minimum of 3.6 days per employee per year due to poor indoor air quality (causing a 12 percent reduction in productivity).⁹
4. For those spending four or more hours a day in front of a computer screen, the introduction of plants made a significant improvement to their efficiency, concentration, and general well being.¹⁰
5. Plant transpiration in any environment creates a humidity level exactly matching the recommended human comfort range of 30 percent to 60 percent. Similarly, the same study concludes that in an absence of plants, the relative humidity in offices runs below this recommended range.¹¹
6. When asked specifically if the physical workplace would have an influence on their decision to accept a position, two out of five employees said it would. Half said the physical workplace would impact their decision to leave a position.¹²

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Just How Safe Is Your Garden Center?

by Andrew J. Mauschbaugh

During the recent, busy spring planting season, a garden center employee was attempting to clean the potting machine. Unfortunately, the new employee had not been trained on cleaning procedures for the machine, and it was not properly locked out for cleaning. The machine was actually *running* while the employee was trying to clean it, and he sustained multiple, open fractures to his hand as a result.

Garden center owners pay a high price in insurance claims from an accident like this, but more importantly, it could cost an employee a limb or even their life in some cases – an incalculable price to pay for a preventable accident.

Could this type of accident occur at your garden center? Even an organized garden center with safety conscious employees can be susceptible to accidents. During this busy season, the number of employees working at a garden center will increase two-fold and more. This increase in employees as well as customers can jeopardize safety and increase the possibility of accidents.

Some of the most common causes of accidents in garden centers include slips/trips/falls, fires, boilers, improperly guarded machinery or equipment, and chemical and electrical hazards.

Many garden center owners are unaware that the cost of each accident often exceeds the actual cost of the insurance claim. While the direct medical, lost wages, and disability costs are covered by the insurance company, other costs associated with the claim, such as lost productivity, re-training and a higher work comp experience modifier, are incurred by the business.

When assessing the safety of your garden center, consider the following risk areas.

Housekeeping

Housekeeping issues are the source of many slip/trip/fall accidents. Boxes and other items should be stacked neatly on shelves, so there is no risk they will fall or present an obstacle for employees or customers. All aisles and walkways should be clear of any clutter or debris that could cause a fall – this includes wooden pallets from delivery of goods. All areas should be well organized, and proper lighting is essential.

External housekeeping is as important as internal housekeeping. Hoses should not be left lying across paths or walkways or coiled up on the ground, where people can easily trip over them. Consider using an auto-recoil system. Outdoor walking surfaces should be relatively flat with no obstacles. Changes in elevation should be clearly marked, and four or more stairs require a handrail for safety. If an area is wet, post a hazard sign to avoid slips and falls.

Fire Hazards

Fire is one of the most common causes of catastrophic property loss, so fire safety is of utmost importance. All flammable liquids should be stored in NFPA cabinets. Wooden pallets, which are extremely flammable, should be stored at least 30 feet away from the outside of exposed buildings. Heaters should be specifically designed for greenhouse use. Fire extinguishers should be mounted and clearly labeled in key areas throughout the garden center and should be self-inspected monthly.

One special area of concern is the use of energy curtains in greenhouses. Energy curtains made of Polyethylene/Aluminum, in particular, have a very high flammability danger, burning 26 times hotter than Polyester/Aluminum curtains. Safer energy curtains are available that limit curtain-to-curtain spread of fire by using a firebreak section along both edges of each curtain.

Energy curtains require at least 24 inches of clearance from any ignition source. Some other precautions you can take include correcting potential wiring problems, placing proper fire-fighting equipment in each structure (garden hoses are NOT adequate), installing and maintaining smoke alarms in all buildings, and training employees about the fire risks associated with energy curtains and how to deal with them in the event of a fire.

Boilers

All boilers should be inspected annually by a licensed inspector, and boiler rooms should be kept clean and orderly at all times. Any combustibles must be stored at least 36 inches away from a boiler. Check regularly for clogged tubes, which can explode.

Machine Guarding

Effectively guarding machinery and training employees on proper use and cleaning can prevent the loss of life or limb. Potting machines, grinders, table saws and other machinery with blades or dangerous moving parts should have shields or guards on them for protection when not in use, and employees should be given clear instructions and training on operating and maintaining all machinery.

Chemicals

Garden centers use many harmful chemicals that can cause illness or injury if safety precautions are not in place. Hazardous chemicals should be stored in cabinets that are locked and labeled, and all containers should be clearly marked with contents. A shower and eye wash station should be immediately available on site in case of contact with chemicals. Areas where hazardous chemicals are used should be well ventilated and include a fan to

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remove any smell or chemical dust. Employees handling chemicals should wear proper face or eye protection to avoid injury.

Electrical Hazards

Electrical hazards in a garden center can cause fires or serious injury, so safety measures should be taken and inspected regularly. All breaker boxes must have tight-fitting covers, and all outlets should be covered. Make sure there is proper wiring that meets the National Electric Code. Plants, products, and other items should be kept at least 3 feet away from electrical panels. Inside the panels, place “dummy” breakers in open breaker slots. Ground prongs are there for a reason – don’t bypass them. Ground fault circuit interrupters (GFCIs) should be used in all wet areas. Use UL-listed cord protectors over walkways.

OSHA Guidelines

Garden centers fall under OSHA Standard Industrial Classification 078 and 5261. In 2004, there were 142 OSHA inspections of garden centers and 360 citations issued, resulting in \$243,891 in penalties. OSHA’s top 10 citations for garden centers were:

1. Personal protective equipment (for eyes, face, head, extremities, etc.)
2. Hazard communication (proper labeling/notification of hazardous chemicals)
3. Eye/face protection (protective goggles or masks)
4. Control of hazardous energy (service/maintenance of machines)
5. Flammable/combustible liquids (proper storage)
6. Electrical wiring (continuity of electrical raceways and enclosures)
7. Powered industrial trucks (safety of forklifts, tractors, hand trucks, etc.)
8. Abrasive wheel (safety guards required)
9. Respiratory protection
10. Machine guarding

In Hortica’s experience with garden centers, we have found that many are not conducting regular safety inspections of their operations. Reasons for this vary, but the most frequent reason expressed is the garden center owner or manager is “too busy.” Every garden center is at risk for accidents. A self-inspection safety program is a good way to detect unsafe conditions that can lead to accidents.

Ask yourself if there are conditions present in your center that could cause serious injury. A self-inspection safety program is helpful in identifying problem areas that need correction and should be conducted on a regular basis.

A well-planned safety program helps detect hazards before an accident occurs, which will also increase operating efficiency.

Components for a Self-Inspection Safety Program

An employee, manager, or garden center owner can conduct the safety inspection. Ideally, a walk-through inspection should be completed at minimum on a monthly basis, when there is a change in employees or operations, and following the installation of new equipment. A checklist should be developed and should include items specific to your operation. Be aware of and pay attention to both unsafe conditions and unsafe acts that contribute to accidents. After each inspection, an appointed employee will need to be responsible for reviewing the reports and ensuring corrective actions are taken, if necessary.

When developing your checklist, be sure to include all areas of your operation. The completion of safety inspection should take less than 30 minutes and can literally save you hundreds, if not thousands, of dollars.

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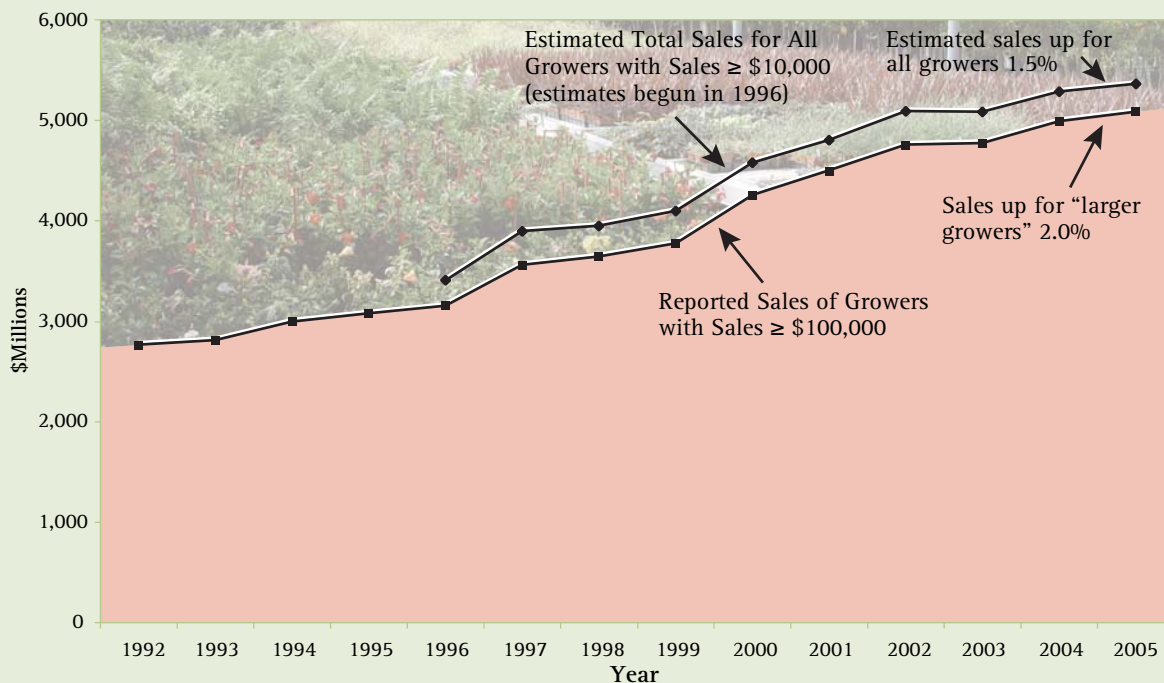


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Continued from page 1

Figure 1. Industry Sales.



independents really must stay vigilant and offer the most innovative products and services to keep consumers asking them for more. The mass marketers, themselves, still seem to be looking for that “right formula,” as the centralization of all buying vs. having regional buyers, a switch to purchasing from a bidding process to outright purchases or to using pay-by-scan, a focus on “narrow but deep” vs. a broad selection, and other alternative strategies have been variously employed by different chains in recent years in an attempt to improve the bottom line.

The consumer remains as fickle as ever. The National Gardening Association’s 2005 National Gardening Survey reports a record 91 million households participating in lawn and garden activities in 2005, an increase of 9 million households from 2004’s 82 million. The 83 percent of households which were involved in 2005 reverses a trend that had seen three successive years of declines in participation dating back to 2001. Yet, these consumers spent only \$35.2 billion at retail, capping off the third year of declining purchases for “do it yourself” lawn and garden sales. In contrast, a record

27.3 million households (30 percent of all households) hired lawn care or landscape services in 2005. While the annual NGA survey did not report the consumer expenditures for these services, other NGA data report increases being spent annually on residential landscape, lawn and tree care services each year, with these expenditures nearly doubling from 1998 to 2003 alone. Furthermore, the trend shown for these service dollars suggests they would likely approximate the NGA figures reported for 2005 that the consumer spent for their own gardening efforts. So, it appears that consumers are spending money on their gardens, even if they are not out there doing the work themselves. For those involved in producing floricultural crops, this news may not be that encouraging, however, as landscapers largely fail to offer flower planting services for residential clients.

Though there are no data measuring the impact of programs such as America in Bloom in the United States, the growing trend of more and more cities landscaping with flowers seems to be a bright spot on the horizon. In

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some European countries that have had “in Bloom” programs for several decades, estimates are that landscaping by municipalities involved in these efforts may account for as much as one-third of the industry’s sales. Certainly the ideal situation would include residential and commercial plantings on top of the plantings

established by the municipalities; unlike the programs of the European counterparts, the America in Bloom program does encourage this through its judging formula.

Grower Statistics

Behind these general trends are many issues of concern. First and, perhaps, foremost, is the question of

Figure 2. Total Sales of bedding/garden plants – units of flats.

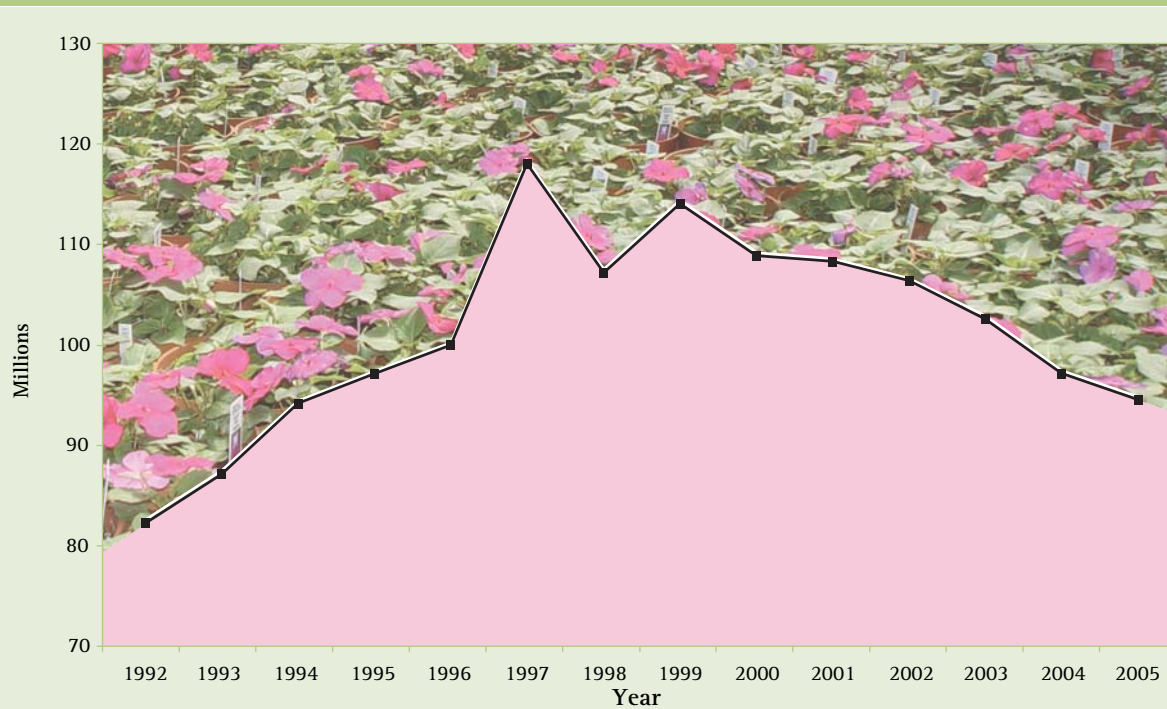
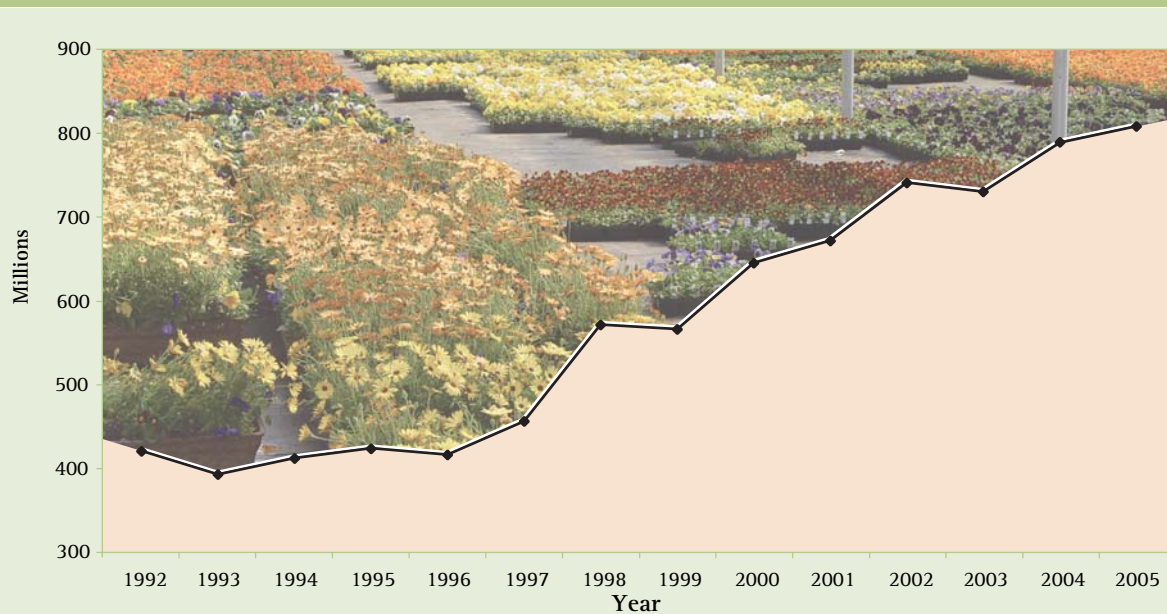


Figure 3. Sales of potted flowering bedding/garden plants (including perennials) – units.





consumer demand. In recent years, many have noted the trend away from bedding plant flats to more and more containerized garden plants being sold (Figures 2 and 3). As recently as 1997, USDA reported more industry sales dollars accrued from the sales of flats than from the sales of potted bedding/garden plants and flowering hanging basket sales combined.

Times have changed dramatically, as sales of flats were only about 31.5 percent of the total bedding/garden plant sales in 2005. Sales of potted bedding/garden plants continue to rise and now account for 57.7 percent of sales when potted perennials are included in the tally. Even without perennials, sales of potted annuals and vegetables accounted for 30.6 percent of the total. Sales of flowering hanging baskets accounted for 10.9 percent of the total bedding/garden plant sales in 2005.

Behind these numbers is the fact that the number of plants being used has dropped dramatically (Figure 4). Consumers do not appear to be planting flower beds, favoring the use of far fewer plants in containers instead. While bedding/ garden plant sales have continued to rise, it becomes obvious that the increased sales have resulted from the increased production times (and costs) for larger and larger plants, as well as from the use of pots and fancier pottery, which have translated into higher prices at retail. As retail prices rise, there is the question of what impact these higher prices may have on consumer demand.

For other industry segments, the trend often has been to lower unit and/or dollar sales. Sales of potted flowering plants have always been erratic, but recent history points to lower demand. Demographic information suggests that

potted flowering plants are largely purchased by older, more traditional consumers and that fewer younger consumers are inclined to spend here. Sales of foliage plants (in dollars) have increased over the last few years (Figure 5, page 10), yet their importance to the overall industry sales has been relatively constant, edging up less than 1.5 percent in share. And sales of domestically produced cut flowers and greens continue to decline, as more and more imports take further control of domestic supplies (Figure 6, page 10).

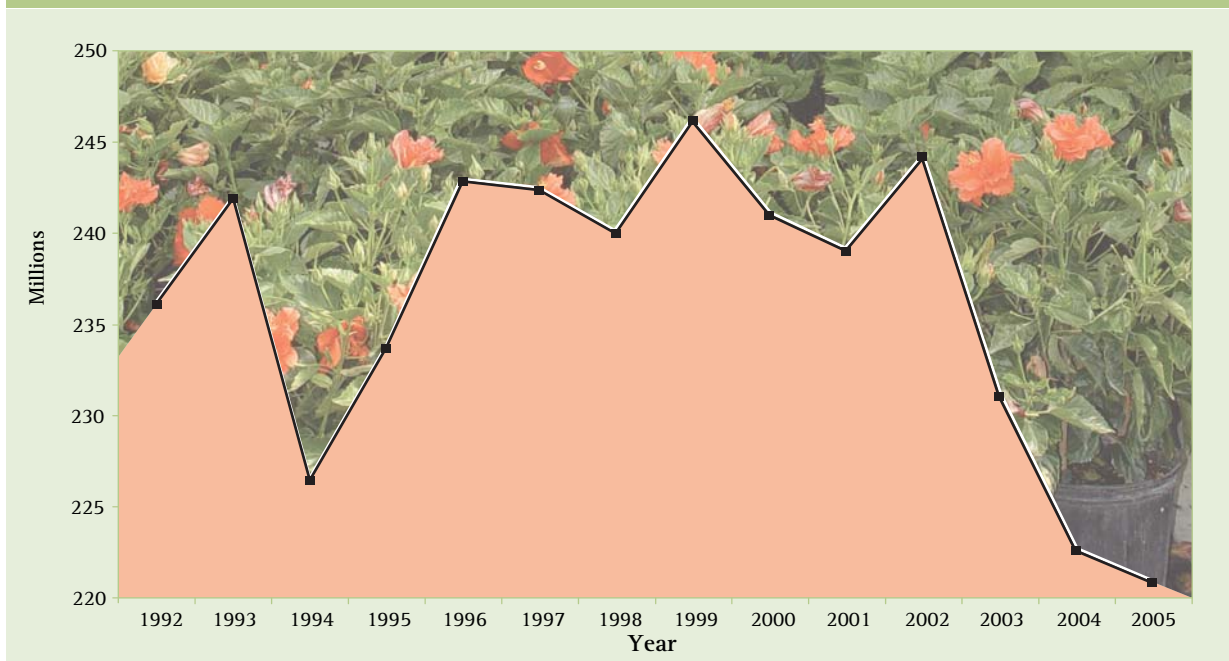
All told, the sales of the industry appear to be more and more focused on the bedding/garden plant sector. While this, itself, is not problematic, the history of the weather playing havoc in any locale on the season's sales of bedding/garden plants suggests the industry is positioned for increased risk from this concentration. Indeed, a quick comparison of the distribution of the floriculture industry's sales from 1997 to 2005 shows the increased reliance on bedding/garden plant sales at the expense of other industry segments (Figures 7 and 8, page 11).

Individual Opportunities Abound

In spite of the challenges, the industry has many opportunities for dealing with the issues. As is often the case, the opportunities are almost all dependent on individual businesses taking the initiative in their individual marketplaces. Still, there are trends that have surfaced.

Many independent retailers have redesigned their establishments in recent years. Many of the makeovers have involved a definite recognition by these retailers

Figure 4. Sales of potted flowering plants – units.



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Figure 5. Sales of foliage plants – dollars.

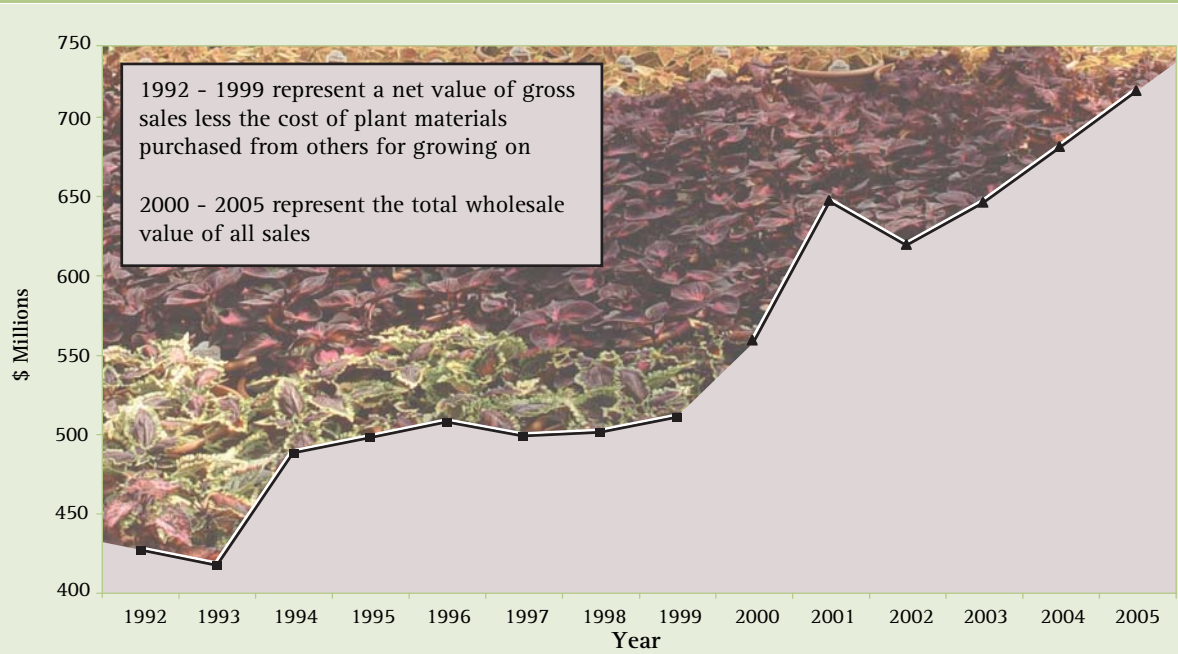
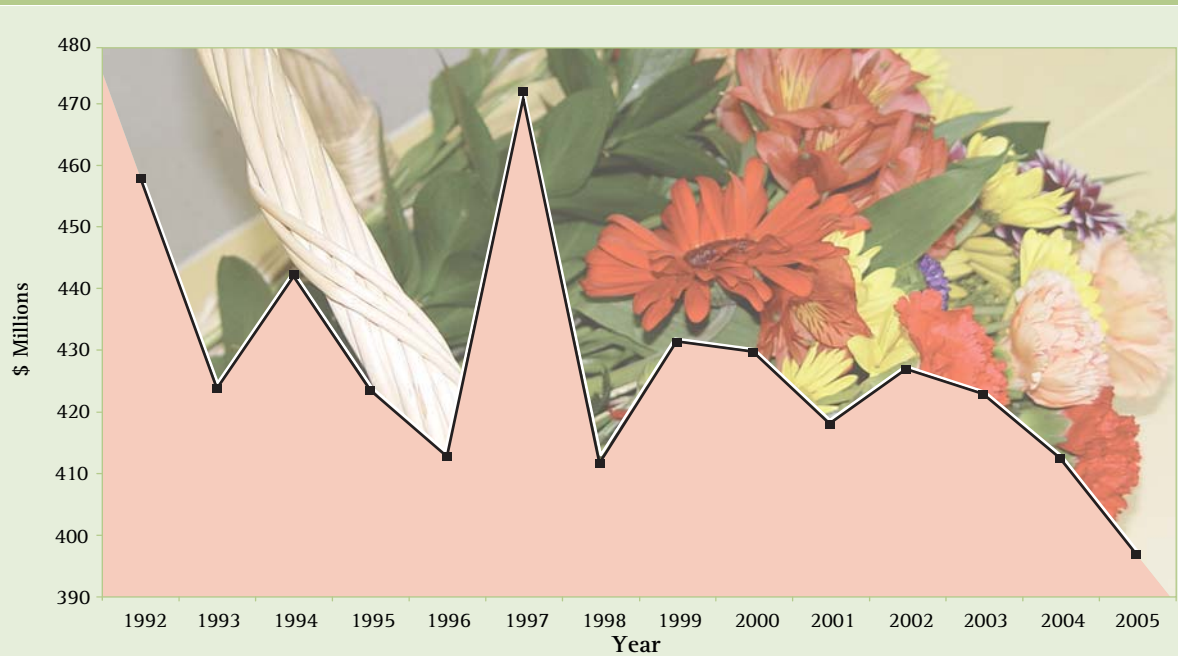


Figure 6. Sales of cut flowers – dollars.



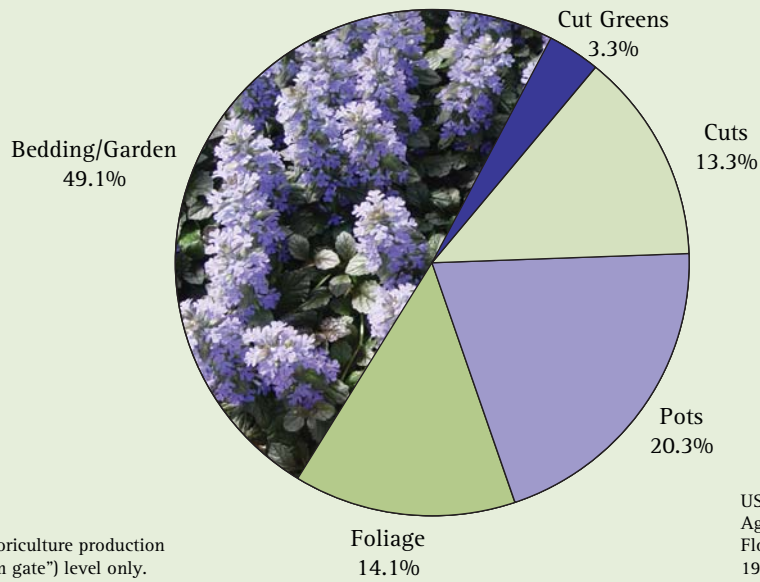
that they are retailers first, and the need to lure the consumer with a pleasant shopping atmosphere is more important than the need to cater to every requirement for the flowers and plants they sell. The improvements often include wider and paved aisles, paved parking areas, better lighting to allow for evening shopping hours, and covered areas to allow for inclement-weather shopping.

Most of the redesigns have included a focus on consumer shopping patterns, including better traffic flow inside the stores, better checkout procedures, better signage, and often better amenities such as bathrooms, displays fixtures, and complementary departments.

In some cases, the redesigns have included movement to a broader offering of the industry's products. Many



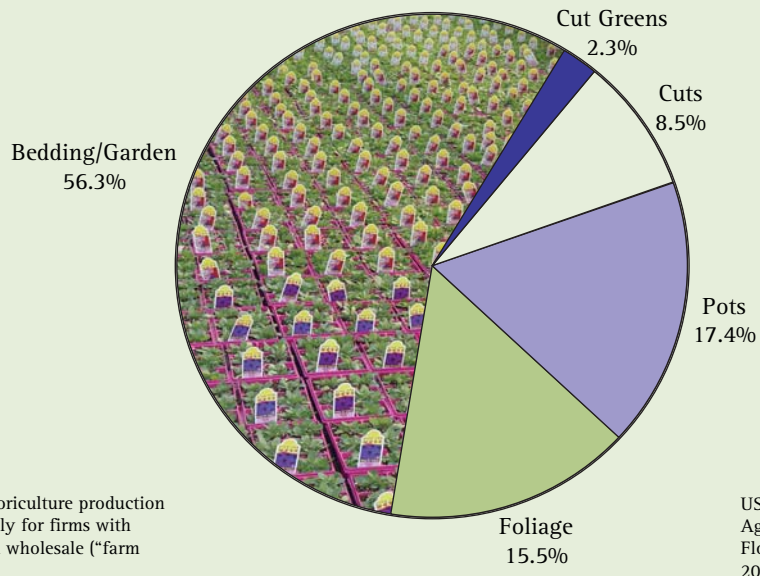
Figure 7. The 1997 U.S. Floriculture Production Pie – \$3.558 billion in sales* (finished production only – wholesale value).



*Includes finished floriculture production at a wholesale ("farm gate") level only.

USDA/NASS, Agricultural Statistics Board; Floriculture Crops - 1998 Summary

Figure 8. The 2005 U.S. Floriculture Production Pie – \$4.645 billion in sales* (finished production only – wholesale value).



*Includes finished floriculture production (wholesale value) only for firms with \$100,000 or more in wholesale ("farm gate") sales.

USDA/NASS, Agricultural Statistics Board; Floriculture Crops - 2005 Summary

garden centers have added potted blooming and foliage plants to their mix. Some have become complete floricultural centers by also incorporating cut flowers. In isolated cases, some independents have totally recast their stores into lifestyle centers, where flowers and plants become accents for the gourmet foods and cooking utensils, furniture, outdoor living, clothing and other departments offered in the new store format.

Unfortunately, in many instances, the marketing opportunities that convey the improvements to potential consumers have often been ignored. Short of announcing the grand opening of the "new and improved store," many retailers fail to incorporate better customer service in their approaches – a definite opportunity to differentiate their store from the many mass marketers

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selling floricultural products. Such opportunities may include services such as customized floral arranging and/or planting, landscape planning and design, delivery, and other features which focus on better information (such as signage) and broader variety selection.

There are also opportunities for marketing suggested by the consumer trends. For example, covered shopping areas, extended shopping hours, and the consumer's increased focus on planters can allow for shopping and "gardening" in inclement weather and even on weekdays, as the experience is now one of buying pre-made containers and taking them home to the porch, patio or deck. The container trend also makes it much easier to "garden" on the shoulders of the traditional season and should allow for improved sales of early spring color bowls and late fall planters. In such instances, it would be important to convey the concept of "fresh for the season" and suggest it is time to rotate the planters for a "seasonal look."

Aside from retailing, there appears to be opportunity for growers to reach out to landscape contractors and landscape maintenance firms. Consumers still appear to be interested in having flowers, even if they are not interested in planting and maintaining flower beds themselves. If maintenance firms could be convinced of the opportunities that exist for planting and maintaining flower beds while they are "on property" for weekly mowings, plenty of money could be made. There are plenty of reports of sales of 4-inch geraniums which include planting and mulching, weekly weeding and deadheading, weekly watering if it doesn't rain, monthly fertilization, and removal of plant materials after frost for commercial accounts at prices of \$25 per plant or more, yet similar services are rarely offered for residential customers. There are also many opportunities to help educate landscapers as to the latest trends in garden plants.

Collective Industry Opportunities

Whether orchestrated collectively and/or business-by-business, there are also several opportunities for the industry to improve in consumers' eyes. Consumers often report a lack of knowledge on how to achieve success; more informative signage and step-by-step detailed instructions appear to be in constant demand. There is a definite interest, as well as ignorance, among younger consumers about gardening in general and plants in particular. Several studies have reported that Generation X and Generation Y consumers appear to be generations

skipped when it comes to spending time outdoors, especially when compared to their parents; this indoor focus may extend to a lack of appreciation for gardening. How to educate and reach disenfranchised consumers is both an industry challenge and an opportunity for individual businesses.

Consumers also report boredom in plant offerings, suggesting the opportunity for diversification of plant materials or at least the containers used to market them. Indeed, in many locales, pansy, mum, geranium, Easter lily, and poinsettia sales appear to have plateaued in recent years. The consumer definitely appears to be shying away from what appear to be commodity offerings.

There also appears to be a great opportunity for the industry to embrace beautification programs such as America in Bloom that encourage municipalities, businesses, and individual homeowners to plant flowers. In cities which have embraced the idea, plant sales have increased over time. And studies have shown that cities benefit from more than the greening efforts alone, as neighborhoods develop a greater focus which often yields reduced crime, improved schools, reduced litter, and an overall greater sense of pride in the community.

Finally, one must mention the opportunity for promotion. Again, whether this promotion should be done business-by-business, through local or regional associations, and/or through a national effort can be debated. There have been numerous studies which have shown that the consumer often forgets flowers and plants as an option when buying. Studies have also shown that promotion does have positive consequences for sales.

Indeed, the industry is in a state of flux. While there are challenges, the opportunities for improved sales appear endless.

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Irrigation Automation: Looking at the Future

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Environmental regulations are becoming stricter and are not likely to change. Thus, the pressure on greenhouses to use water more efficiently will increase, for both economical and environmental reasons. To increase greenhouse irrigation efficiency, we need to learn more about how much water plants really need.

Irrigation Automation

The most common way to automatically turn irrigation on and off is through the use of an irrigation timer (Figure 1). However, timers are unable to adjust watering based on changing water needs as plants get larger or weather conditions change. The goal of efficient, automated irrigation should be to supply the plants with the required amount of water when necessary. But, how you determine when a crop really needs water? An experienced grower can look at the plants to determine if they need water, but this approach is not practical for automation. There are different ways to automate irrigation based on crop water needs, and each method has benefits and drawbacks. We will take a look at different approaches and do some crystal ball-gazing to see what developments may be in the future.

Measuring Environmental Conditions

The amount of water used by plants depends on a variety of environmental conditions, such as light, temperature, air movement, and relative humidity (which is closely related to the vapor pressure deficit or VPD). So by measuring one or more of these parameters, you may be able to estimate the amount of water used by plants and irrigate accordingly. Computer models that estimate water use can be incorporated into the software for your greenhouse environmental control, and the greenhouse computer can control your irrigation.



Figure 1. Irrigation timers are the simplest way to automatically turn irrigation on and off. Unfortunately, they cannot automatically adjust the watering schedule according to the changing water needs of the plants.

One approach is to control irrigation based on VPD. The simplest way to do this is to measure the relative humidity and air temperature in the greenhouse (Figure 2). From these two measurements, the computer can calculate how much water vapor is actually present in the air as well as how much water would be present at 100 percent humidity. The amount of water vapor in the air at 100 percent humidity minus the actual amount of water vapor is the VPD. The larger the VPD is, the more water plants will transpire. Thus, VPD can be used to predict water needs. To make these predictions more accurate, you can measure the temperature of the leaves as well. That would allow the computer to calculate the amount of water vapor inside the leaf. Transpiration depends on the difference between the amount of water vapor in the leaf and the amount of water vapor in the air. In many cases it is not practical to measure real leaves, and the temperature of an “artificial leaf” is measured instead.



Figure 2. Temperature and humidity sensors should be inside an enclosure that keeps the sensors shaded. The enclosure has a filter and fan to provide adequate air flow past the sensor. Make sure to clean the filter and check the fan regularly. A broken fan may cause temperature readings to be too high.

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Simple or Complex Models?

Transpiration models can be improved by including the effects of light, wind, or other variables. In theory, including more variables in these models increases accuracy. However, including more variables increases the complexity of the models. Measuring more environmental parameters, increases the chances of having one or more incorrect measurements. First, any sensor can, and at some stage will, malfunction or fail completely. Computer models that rely on data from these sensors are only as good as the data from the least reliable sensor. Secondly, sensors should be recalibrated regularly, in many cases every one to two years. But when is the last time that the light or relative humidity sensor in your greenhouse was recalibrated? Probably a long time ago. So, if you use environmental sensors to estimate plant water use, make sure that your sensors are recalibrated as needed.

The biggest problem with estimating irrigation needs with computer models is that water needs change during crop production. Obviously, larger plants need more water than small ones. To account for this, more advanced computer models generally use a parameter that changes as the plants grow. Researchers that develop these models may refer to this factor as “crop coefficients.” The difficulty with using crop coefficients is not just that they change throughout the production period, but that they differ among species. So you might need a different crop coefficient for mums than for poinsettias, and probably different coefficients for poinsettias in an 8-inch container versus a 6-inch container. Given the constant introduction of new species, we will never have accurate crop coefficients for all plants. So, in many cases these coefficients will simply need to be best estimates.

We do not want to leave you with the impression that these models are inherently flawed and useless. These models have their place in irrigation automation, but if you are going to use them, make sure that you understand their limitations.

Direct Measurements of Water Need

An alternative to modeling water needs is to try to measure them directly. This can be done in different ways. The first decision to make is what to measure - the water status of the plant or the substrate? Measuring the water status of the plant has the advantage that you may be able to directly determine if your plants are suffering from drought stress. The drawback, though, is that the plant water status changes gradually throughout the day, even if the plants are not too dry. This can make it difficult to distinguish between regular, diurnal changes and changes induced by drought.

The other option is to measure the substrate water status. Instead of trying to determine whether plants are suffering from drought, this determines if there is enough water in the substrate for the plants. If the substrate water status is too low, the irrigation is turned on.

Measuring the Plants

As plants transpire, leaves are cooled. Because of this, the leaf temperature of well-watered plants is normally slightly below the temperature of the air, while the leaf temperature of drought-stressed plants is above that of the air. Thus, the difference between leaf and air temperature may indicate plant water status. Leaf temperature can be measured in different ways using leaf temperature sensors or with infrared thermometers. Because infrared sensors are not attached to the plants, measurements are made via “remote sensing.” Infrared sensors are readily available and can easily be connected to many greenhouse control systems.

Other remote sensing options under development are determining movement of the leaves and measuring specific wavelengths of light reflected by leaves. When plants dry out, leaves eventually wilt. Using remote sensing, it is possible to measure slight changes in leaf angles, and wilting can be determined well before the human eye can see it. Measuring the light reflected by leaves also can be used to determine drought at early stages. By measuring small changes in different wavelengths of infrared radiation reflected by leaves, it is possible to determine impending drought stress. This approach works in laboratory applications, and may be ready for real world applications in the near future.

Remote sensing techniques have the advantage that it is possible to measure many plants at once, and the readings can be averaged. That way, irrigation decisions are not based on measurements of one or a few plants, which may or may not be representative of the whole crop. A difficulty that many remote sensing techniques still struggle with is to distinguish between the plants and everything else in the picture. Because of this, remote sensing techniques are easier for crops with large canopies, such as cut flowers and greenhouse vegetables, versus bedding plants and potted plants. However, with the ever-decreasing price of electronics and increasing computing power, remote sensing will become more feasible as time goes by.

Measuring the Substrate

Since irrigation and plant water use both directly affect the amount of water in the substrate, substrate water level is a logical measurement for use in irrigation control. There are two substrate parameters that can be measured, the water tension and the water content. Substrate tension, or water potential, determines how

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tightly water is held by the substrate. As a substrate dries out, the remaining water is held more and more tightly, until plants can no longer take it up. As the water tension in the substrate approaches the minimum tension for plant use, irrigation is necessary. Water tension can be measured with tensiometers, which have been around for a long time. However, tensiometers have been difficult to use in soilless substrates because of the required maintenance and the need for very close contact of the sensor with the substrate. With traditional tensiometers, any disturbance could break the contact between the sensor and the substrate, resulting in bad readings. Recent improvements in tensiometers have made them easier to use, and their use in irrigation control is likely to increase.

Measuring the actual amount of water in the substrate (water content) traditionally has been either expensive or inaccurate. However, in recent years cheaper and more accurate soil moisture sensors have become available, and these have great potential for irrigation control. The idea is similar to that behind the use of tensiometers: as plants use water, the amount of water in the substrate drops, and when it drops below a certain level it needs to be replenished by irrigation. By using this approach, plants only get watered when needed, and excess irrigation can be prevented. We use this concept in our research and have been able to grow plants without any leaching (of course, a grower can still leach if he

chooses, using this system). At least two irrigation controllers that use this principle are now available. We have worked with Brower Electronics Labs, Pittsboro, North Carolina, on a controller that uses soil moisture probes (ECH₂O-5 probes) made by Decagon Devices, Pullman, Washington (Figure 3). This controller allows growers to set a minimum substrate moisture level at which the plants will be irrigated, the irrigation duration, and a minimum interval between subsequent irrigations. This single station controller can be interfaced with existing systems or used as a stand-alone controller. One to four moisture probes can be connected to the controller, and the controller will use the average reading from the probes for irrigation control. Dynamax, Houston, Texas, has developed a similar controller, the Moisture Klik™ (Figure 4). A soil moisture sensor can be buried in the substrate, and a 24 VAC relay is activated when the substrate water content drops below a grower-determined level. Although this controller was developed for regular soils, it should work in soilless substrate as well. We are just starting to test this controller for greenhouse use and hope to have more information on it in the near future. It will soon be possible to connect these soil moisture probes to a greenhouse environmental control system as well, so that they can control irrigation based on real-time measurements.

Using a somewhat different approach, Rain Bird has developed an irrigation controller for landscapes (model MS-100), with a soil moisture probe that is buried. As long as this probe measures a sufficient amount of water in the soil, it overrides the irrigation timer and prevents



Figure 3. The single-zone irrigation controller from Brower Electronics Labs uses one to four ECH₂O-5 probes from Decagon to measure the substrate water content. As the water content drops below the set point, irrigation can automatically be turned on.



Figure 4. The Moisture Klik™ irrigation controller from Dynamax uses an SM200 moisture sensor. When the substrate water content drops below the set point, the irrigation is turned on until the water content is raised above the set point.

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irrigation. Thus, a timer can be programmed for frequent irrigations, but as long as there is ample water in the soil, the irrigation system will not come on. Unfortunately, the soil moisture probe used by Rain Bird is not suitable for greenhouse use. However, a similar approach could easily be adapted for greenhouse applications.

An exciting new development in this area is that Decagon devices will soon have a new probe that can measure both the water content and EC of the substrate. This may make it possible to automatically irrigate with plain water or fertilizer solution, based on the water and fertilizer requirements of the plants. Since fertilization and irrigation are so closely linked in greenhouse production, automating them together seems like a logical future development.

Some Final Thoughts

So, what is the best method to determine how often and how much to irrigate? We don't think that there is one approach that fits all. As a grower, you need to take a good look at how you grow your plants and exactly what benefits you expect from automation. If you decide that automation is the right thing for you, consider the different options. In many cases, you may end up with a combination of different approaches. For example, you may end up with a system that irrigates when the substrate becomes too dry, but perhaps also irrigates when the leaves are getting too warm (or it at least sets off an alarm). A combination of different, independent approaches has the advantage that if your main system

fails, another system may notice this, reducing the chances of serious problems. Finally, no automated system will ever be able to replace the instincts of a good grower. No matter how many sensors or computer models you may use, you need to make sure that you are happy with the way the plants are watered. Do not expect that you will ever be able to turn over irrigation to a computer and walk away from it. Although automation may be able to reduce the amount of labor needed to grow a crop, it cannot and should not replace the grower. Think of automated systems as a tool to aid you, not to replace you.

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The Changing Needs of Poinsettia Production: Efficiency!

by Jack Williams



When I visit growers we will invariably get around to discussing a common set of challenges we all seem to be facing with poinsettias: low prices due to competition, high energy costs, pressure from insects and disease and the all-powerful market uncertainty. Surprisingly, despite this list of doom and gloom, growers are still relatively positive about this past season and prospects for the future. However, to successfully produce their crop, all acknowledge they have to be smarter, more careful, and more respectful of resources they use. Boiled down to a single word, "efficiency" is becoming a mantra in our industry.

Efficiency takes on a range of meanings when applied to the poinsettia crop. It can be as specific as a focus on energy or space (density of production and growing

regimes for energy conservation and cost control) or as broad as minimizing shrink that occurs from production problems or transportation/retail handling of plants. If achieved, efficiency allows growers to control and contain some of the input costs associated with production without compromising quality of finished plants. What a daunting, but necessary challenge for us all! What does it take to get the most out of the crop with the least amount of input resources? Let us look at a few of those factors.

Planning

Step 1 in efficiency is to properly schedule the crop for optimum results. We can no longer accept doing what we have always done. Evaluate production and

identify if there are yearly issues controlling height or meeting size and bract count specifications. If so, adjust plant and pinch dates to get the results needed to meet these specs. Consider all factors, such as cost and the labor to apply plant growth regulators (PGRs), as well as the risk of damage during applications. PGR use can be reduced and consistency of finished plants improved if poinsettias are given appropriate vegetative time for development. It is important to monitor development throughout production and adjust growth as needed to avoid using energy at the end to push plants to desired finished size. For help in scheduling your crop, go to www.ecke.com/new1/poin_techhelp.asp.

Cuttings

Whether growing your own mother plants or purchasing cuttings, the quality you start with is an important factor in production. Uniformity and consistency make it easier to save time and labor when sorting and grading plants at all stages of handling, including transplanting, spacing, spraying, and packing. Work with reliable suppliers who deliver healthy, good quality cuttings on the date required, and in the quantities needed for optimum scheduling.

Variety Selection

Production efficiencies, such as space required, energy required, and risk of damage or shrink during transportation of blooming plants, are influenced by the specific varieties grown. When possible, produce families such as the Freedom or Enduring series in order to manage the full range of colors with similar production practices/regimes with maximum uniformity of culture and efficiency of production (Figure 1).

Space Efficiency

This method has been used by growers to produce more plants in the same space - unfortunately not always with good results. As plants are crowded on benches, problems are more likely to develop with stretched, weak



Figure 1. Enduring series. Because cultivars within a poinsettia series are generally uniform in production requirements, production efficiencies can be gained by selecting the range of colors that you plan to grow from a given series.

stems that break easily during transport and lower leaf yellowing/drop, creating a greater risk of Botrytis that damages bracts. When selecting poinsettias for high density production, look for varieties with a good upright "V" shape branch habit that allows good air and light penetration to the lower plant canopy throughout production. Novelty varieties like 'Jester' make it possible to increase production density by as much as 15 percent due to their distinct upright or incurved leaves and bracts (Figure 2). Some mainstream varieties like, 'Independence Red' and 'Prestige' (Figure 3, page 18) are ideal for high density programs and can gain 10 percent additional product in the same space. The Pepride series is another poinsettia family that has been tested and successfully grown at high density. Due to the leaf and bract characteristics of Pepride, it is best used either in smaller pot forms (4-inch, for example) or in warm climates like the Southeast states where temperatures and humidity encourage bract expansion for more color show.

Another opportunity for high density production is to grow forms that are smaller in size, such as miniatures in 2.5-inch pots. These forms work best as the shorter plants do not block as much light. Avoid crowding plants in large pot sizes (6.5-inch or larger) as problems with lower leaf drop will be increased due to diminished light levels in the lower plant canopy.

Energy Efficiency

Given rising costs, energy efficiency has been in the forefront of grower's minds. It is possible to grow poinsettias at cool temperatures with good results using varieties adaptable to such programs; however, not all varieties are tolerant of cold temperature growing. Finished plants grown cool generally have more horizontal bract and leaf position. These structures do not expand as fully nor are as soft as when grown at more normal temperatures. Color intensity of bracts is



Figure 2. 'Jester' in Production. Varieties like 'Jester' are well adapted to high density (space efficient) production and can result in 10 percent to 15 percent more production in the same space as other more traditional poinsettias.

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also enhanced, especially with the red varieties. It is important to manage crop temperatures at key stages of development in order to keep plants on schedule. Some considerations for best results;

- Start the crop early enough to achieve a good height and size; late transplanting does not yield quality results. If the crop is started late for any reason, it is unlikely to develop into good quality finished plants as a result of the slower growth rates at cool temperatures.
- During initial development in long day conditions, build plants up through fertilization and optimum light and crop spacing. During September, an average 68°F/18°C is needed to keep the crop growing. Do not cut back on energy here, even though it is tempting to avoid heating at night.
- After flower initiation (late September to early October for most growers), reduce the average temperatures to no less than 65°F/17°C. This is the period of active growth for the crop, and cooling more than this can have more significant impact on height and size of the plants along with flower timing.
- Once color has started to form in November, temperatures can be taken down further to average 63°F/16°C. Although bract size is compromised by these conditions, the varieties produced have large bracts naturally so the resulting size will still be acceptable.
- When plants have reached full maturity and are ready to be shipped to market, temperatures can be further cooled provided the greenhouse can be kept dry to avoid diseases like Botrytis. Use of horizontal air flow fans in the greenhouse are highly recommended to keep moisture from forming on bracts and leaves. At these temperatures be sure to manage irrigation and prevent soil from staying saturated, which can lead to Pythium or other root rots.



Figure 3. Reducing “Shrink”. ‘Prestige’ is the only poinsettia genetically resistant to stem breakage, helping reduce losses from shrink during transportation and handling of poinsettias at retail.

Varieties from Ecke genetics that have proven adaptable for energy efficient (cool temperature production) programs include the Enduring and Freedom series, and ‘Autumn Red’ and ‘Jester’ (Figure 2, page 17). In addition, the 2006 trial collection includes several new poinsettia varieties with the potential to be grown cool, including a new ‘Prestige Early Red’. Looking at this list, most of the varieties suggested have early season flowering characteristics, although this is not an absolute for success. Using early blooming varieties helps reduce risk of missing peak sales because developing color and bract expansion happens earlier in the season when light levels and temperatures are not as compromised.

It is important to separate varieties being grown cool from later blooming varieties to avoid delaying bract development of these poinsettias. The energy required to force them into bloom will negate the benefits of having grown other plants cool. During 2005, studies were conducted in the United Kingdom to evaluate if poinsettias started late could be bloomed successfully through managed temperatures and light. The initial results of this study concluded that energy costs associated with forcing poinsettias were as much as three times normal. When one considers the energy load required to force plants in November if behind schedule, it is easy to understand the cost far exceeds any savings gained from withholding energy earlier in the crop. Don’t get into this bind!

Other production efficiencies to consider include 1) grading the crop for uniformity in size, helping with height control programs; 2) locating varieties in the greenhouse specifically with temperature zones in mind, helping bring uniformity to the crop by providing the right conditions for the right variety; and 3) grouping varieties based on water uptake characteristics, not mixing large leaf varieties with small leaf types and expecting irrigation to be optimum for either group. These may seem like minor considerations, but attention to them in the planning and early production stages helps prevent additional labor needs to sort and correct problems closer to time of sale.

Grading

By grading the crop and sorting out plants by size at time of spacing, height tracking and PGR applications can be done more uniformly. Grading will also make keeping good records and crop history more accurate, as plants are likely to be treated in a more uniform or consistent manner. Ultimately this also impacts use of DIF and PGR treatments in large production blocks. Uniformity of size makes it possible to manage the crop with less time and effort.



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Another benefit comes in labor utilization. By spacing largest plants first and then complete spacing with smaller plants, labor needs can be spread out over time, reducing the “crunch” generally associated with spacing. Although total man hours used may not be less, the end result is better and more uniform.

Locating

By locating varieties in greenhouses to take advantage of different temperature zones it's possible to manipulate growth and timing of the crop. By putting varieties needing higher temperatures in warm zones of the greenhouse while at the same time putting varieties that tolerate cool temperatures in colder zones, it is possible to achieve uniform timing for each without adjusting the thermostat. Another example is putting the largest plants closest to vents (usually a cooler area of the greenhouse) and smaller plants on the other end of the bench. Temperature differentials will help slow the growth of large plants and advance development of smaller plants, which results in benches full of uniform plants ready to pack at the same time. In this case, the lack of uniformity of conditions can work to your advantage. When possible, fill entire greenhouses or temperature zones with varieties having similar requirements to manage the environment for maximum efficiency. If you can grow one zone for “cool temperatures” and group varieties needing warmer temperatures together in a separate zone, energy can be diverted to plants that require higher temperatures and avoid forcing the other plants where energy savings can be realized. Proper advance planning and knowing your greenhouses' unique characteristics ensures getting the most efficiencies out of locating varieties in the greenhouse for maximum uniformity (Figures 4a and 4b).

Grouping

Another factor which goes back to good advanced planning is grouping of plants with similar irrigation/water use requirements. Poinsettias with smaller leaves and less aggressive growth will use less water than plants with larger leaves. The most common problems when mixing varieties with dissimilar irrigation requirements are root rot and fungus gnat larvae problems that can occur on plants kept too wet, or root damage from drying and fertilizer salt accumulation on plants needing more water. In either situation, part of the crop suffers and quality is impacted (Figure 5). Examples here would be ‘Jester’ and ‘Winter Rose’ on one irrigation cycle with most other varieties together on a different cycle.



Figure 4a and 4b. Plants Delayed from Heat or Cold. Naturally occurring temperature zones in the greenhouse should be identified so appropriate varieties can be located in these zones in order to meet targeted sales windows without using energy to push the crop into flower.



Figure 5. Grouping by Water Requirements. Avoid putting varieties with different water uses characteristics together on the same water system as damage is likely from over-irrigation or from being under-irrigated by a portion of the crop.

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Poinsettia varieties and series with characteristics that facilitate your efforts to "grow smart" and save money.

Note: The variety and series lists below are not intended to be all encompassing, just some of the best examples in each category.

Suggested poinsettia families or series

- Dummen USA: Premium
- Ecke Ranch: Freedom and Enduring
- Fischer USA: Cortez and Sonora
- Oglevee Ltd: Festival and Winterfest
- Selecta First Class Inc: Christmas Feelings and Christmas Star

Space efficient varieties and/or series

- Dummen USA: Premium and 'Avantgarde Red'
- Ecke Ranch: 'Prestige' and 'Jester'
- Fischer USA: Mars and Carousel
- Oglevee Ltd: 'Red Angel'
- Selecta First Class Inc: Christmas Feelings and Christmas Star

Cool temperature production tolerant varieties and/or series

- Dummen USA: Premium
- Ecke Ranch: Freedom and 'Autumn Red'
- Fischer USA: Orion and 'Olympus Red'
- Selecta First Class Inc: Christmas Feelings and 'Christmas Carol'

Small leaved, less aggressive cultivars and/or series

- Dummen USA: 'Avantgarde'
- Ecke Ranch: 'Winter Rose' and 'Jester'
- Fischer USA: 'Carousel Red' and 'Carousel Pink'
- Oglevee Ltd: 'Red Angel'
- Selecta First Class Inc: Golden Christmas and 'Happy Christmas'

Varieties and/or series that are particularly resistant to stem breakage

- Dummen USA: Premium and 'Euroglory'
- Ecke Ranch: 'Prestige' and 'Independence Red'
- Fischer USA: Mars and 'Holly Berry'
- Oglevee Ltd: 'Red Angel' and Gala series
- Selecta First Class Inc: Christmas Feelings and 'Amazing Pink'

Poinsettia supplier resource web sites

- Dummen USA: www.dummenusa.com
- Ecke Ranch: www.ecke.com
- Fischer USA: www.fischerusa.com
- Oglevee Ltd: www.oglevee.com
- Selecta First Class Inc: www.firstclassplants.com

Efficiency can be achieved through multiple opportunities in the poinsettia crop. Evaluate where good planning and management of the crop can provide advantages, then exploit these features. Like anything, there will be a few compromises made along the way in order to gain the benefits, but through higher efficiency growers can realize gains in the cost of production and keep ahead of the rising competition facing us all!

To get the best out of your poinsettia crops, remember to make "efficiency" your mantra. Now repeat after me:

plan for efficiency, grade for efficiency, locate for efficiency, group for efficiency, and grow for efficiency! Once again now: plan for efficiency...

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Holiday Pre-Planning for the Interiorscaper: Organizing the Buying and Selling Process

by Karin Senneff

Christmas comes around once a year, however for most in the “biz,” the planning starts the day after the installation process is complete. Glitter on the face has become a 12-months-a-year phenomenon for most holiday décor providers.

First Things First . . . Clean, Organize, Count, and Order

For companies that engage in both the assembly of holiday products and the installation, pre-market planning and buying is essential. Attending one of the large markets is a must and requires a keen buying strategy. Most of these are scheduled by the major markets (Dallas, Atlanta, New York, Los Angeles) early in the year, where suppliers market their products and buyers place orders. In preparation for the important “first step,” one must have a clear sense of what saleable products remain in their inventory. This begins with an all-out clean up effort to have all like items organized in your warehouse. The ultimate goal is to have a concise record of all existing inventory prior to attending market. A history of the items and quantities that were purchased in the prior year is very important as well, as this will assist you in making decisions on quantities for the new

year. This avoids the “crap shoot” mentality in buying. This accurate accounting of all remaining products, both PVC (all greenery products) and trim (floral, ribbon, ornaments) can be documented easily in an excel format. Figure 1 is an inventory by item. Figure 2 is an inventory by theme.



So Many Suppliers . . .

Determine which suppliers you intend to place orders with. It is best to take a balanced approach here. You certainly don’t want to place all your eggs in one basket; on the other hand, you don’t want to order from too many suppliers. This only creates more work for you and your staff in managing these vendor partnerships, and also may not give you the most buying power. Seldom should one do business with a supplier that does not offer a dating program. A dating program is one that allows a buyer to place an order early in the year and make an arrangement for payment in the last quarter of the year. Typical dating programs ship in July and bill in November or December. Be sure to always inquire about their buying discounts based on volume. It is suggested that you limit your major PVC and trim product purchasing to no more than five importers.

Figure 1. Inventory by item.

Item Code	Description	Qty.	Cost	Extended
SSC-OCB743	100mm Glitter Ball Asst. G.P.B.	126	0.72	90.72
SSC-RLI645	2.5X10Yds Fab. Gold Ribbon	1440	0.25	360.00
SSC-RRR997	4x5yds Papervine Wired	1310	0.82	1,074.20

Figure 2. Inventory by theme.

Deck the Halls Totals – Ornament						
Type	Item Code	Description	2003 Inventory	2004 Inventory	2005 Purchases	Final 05
A1	SSC-OCB743	100mm Glitter Ball Asst. G.P.B.	74	213	72	169
A2	SSC-OCB745	150mm Glitter Ball Asst. G.P.B.	170	117	72	39

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Plan the Year in Advance

It is helpful to plot out the events of next year as it gives you a guide of what to do and when. This is helpful for many reasons as the holiday décor business has often been compared to child birth and creates lapses in memory! After the “baby” is born (and the checks starts rolling in), one forgets the pain. The list may look something like this:

January

- Mail client surveys
- Clean warehouse
- Count inventory
- Client file maintenance
- Vendor file maintenance
- Post holiday meeting with key staff
- Holiday Expo – Market
- Purchase orders
- Place sample order (samples are used for design boards and photos)

February

- Theme composition (our recipes)
- Item code creation/maintenance (for our estimating system)
- Update design proportions (how much stuff goes on what!)

March

- Sales meeting preparation
- Style sheet creation
- Design board creation (used by the sales staff to present design concepts)
- Sales guidelines
- Finalize pricing
- Create pricing/procedure and product guides
- Follow up with all vendors on arrival of new catalogs
- Give each sales person a pricing procedures guide for the new year, and a large binder filled with the catalogs or CDs from the selected vendors. Most vendors are happy to ship these to you in quantity when they become available to them.

Figure 3. Christmas 2006 Theme Items Worksheet.

Theme:						
Item Type	Vendor	Product #	Pk.	Description	Qty.	Unit Cost
Greenery						
Electrical Cord						
50 Bulb Light Set						
Tree Skirt 3 Yd.						
Ornament - A1						
Ornament - A2						
Ornament - A3						
Ornament - B1						
Ornament - B2						
Ornament - B3						
Ornament - C1						
Ornament - C2						
Ornament - C3						
Design Spray						



ofa Interior Plantscape

April

- Sales meeting
- Follow up on questions from the sales meeting

You get the gist...

Sell, Sell, and Sell Some More . . .

Well, all that buying was fun, now it's time to sell. In the holiday décor business, selling means LEASING. The same reason why we appreciate our "reoccurring revenue" business on the horticulture side is the same motive for leasing holiday décor. Holiday décor is not a good investment, and most clients will agree that what they really are looking for is an easy solution for what can be a big headache. Offer the turn key, one stop holiday solution. Sing this song and the world will be singing with you: *Design, Set Up, Removal and Storage, all for one price.*

Continue to simplify all your procedures in the sales process as well. One suggestion is to offer all your themed items at the same price. For example: All 7.5-foot decorated trees in any design theme lease for the same price. This will require that in the buying process you are careful to purchase items for each theme within a pre-set cost range. You may find the worksheet (Figure 3) helpful in that aim.

When making purchases, all A1 ornaments must fall in a cost range of \$0.75 to \$1.50, and so forth. If purchasing is executed in this disciplined manner you will be amazed at how closely all themes cost out. Your clients and sales staff will appreciate the fact that choices in designs can be made without the hassle of price differences.

Go Forth and Create a Glitter War . . .

The art of the successful holiday installation has been likened to the art of war. In the military they use

Figure 4. Wedding proposal.

Headquarters, Squadron 23 Texas A&M University CLASSIFIED AS: T O P S E C R E T

HIGHLY SENSITIVE

MEMORANDUM

TO: Family, Friends, and Buddies

OPORD: OPERATION POP-THE-QUESTION

TASK ORGANIZATION

I. SITUATION:

A. ENEMY FORCES: None. Well, Graduation...

B. FRIENDLY FORCES: New Opportunities, Responsibilities, and The Fightin' Texas Aggies!

C. CIVILIANS: Parents, Family, and Friends.

II. MISSION: Squadron 18 & 23 Seniors will form an Honor Guard to establish a Saber Arch at the Century Tree in the Academic Plaza NLT 1800 HRS on 11 MAY 2006. Joshua Michael Senneff will then ask Kathryn Rachel Marie Kern for her hand in Marriage.

III. EXECUTION: A. CONCEPT OF OPERATION:

WHAT	WHO	WHEN
Meet for Campus Tour	Katie, Josh, Grandpa, Family	1800
Muster by Century Tree	Cadets, Family, Friends	1800
Run through Saber Arch Procedure	Honor Guard	1805
"Emergency" Phone Call	Tyler	ASAP
Arrive at Academic Plaza	Tour Group	1815
Saber Arch	Josh, Katie, Honor Guard	1820

Continued on page 24

Holiday Pre-Planning for the Interiorscaper: Organizing the Buying and Selling Process

Continued from page 23

a document called an “Op Order.” This creates the foundation of who will do what and when. Recently our son (a Cadet in Corps, Texas A&M University) sent us such a document (Figure 4, page 23) announcing his intention to propose to his girlfriend. This “top secret” event which included over 75 friends and family from all over Texas, went off without a hitch.

Admittedly, to the on looker, not very romantic planning, however the end result? She said Yes!

Without a detailed investigation of your “enemy” (disorganization, overtime, product shortages, labor issues, poor planning, fatigue, etc.), your “friendly forces” (vendors, team members and clients), a well thought out

“mission” (sales and buying goals) and your “execution plan”, (concise inventory, a good buying strategy, and clear documented and communicated procedures) winning the glitter war is unlikely. Here is to a successful season for all filled with peace, joy, and profits!

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ofa

Ask the Doctor

Dr. Steve Carver, OFA



In this month's Ask the Doctor, we will pose two problems; we'll provide the answers in the next issue of the *OFA Bulletin*. The first problem, more a quiz harkening back to your last biology class, is illustrated in the picture shown. It was submitted to the “doctor” with the following comment, “I was hoping someone may be able to shed some light on how this came to be. It is just one tulip that has blossomed like this. I would love to hear any thoughts and opinions anyone might have.” So what do YOU think? What is the condition called? What causes it? Is it something to be concerned about?

The second, more challenging problem is one that I observed (but unfortunately didn't take any pictures of) on Easter lilies this spring at a retail grower/garden center in central Ohio. The symptoms appear as a bud and flower splitting. The retail grower brought his Easter lilies in as prefinished plants from another grower when the buds were about 0.5 inch long. The first hint of problems weren't noticed until the buds were 2 to 3 inches long. The retail grower said that the plants were very tall when he received them and that the prefinisher said that he had used a “tremendous” amount of A-Rest, so the retail grower should not use any more. To control subsequent growth, the retail grower used a strong negative DIF (68°F nights/mid-50°F days). Plants were fertilized (by the retail grower) at a “standard” rate, and the retailer drenched the pots once with Cleary's 3336 and Banrot.

Symptoms:

- Flower splitting, they opened looking like a pin-wheel or a fan rather than the typical trumpet shape. No necrosis was associated with the splitting (the retail grower sold almost all of them with little or no comment or complaint). Splitting was first noticeable when buds were 2 to 3 inches long, but the buds continued to open.

Pattern:

- On plant: just one flower on some plants, all flowers on some others, most often it was at least a couple of the flowers.
- In the greenhouse: about 35 percent of the plants growing in the polyhouse had at least one split flower but the affected plants were scattered throughout the house (i.e. there was no apparent pattern).

The retail grower indicated that he has seen this problem before, but prior to this year never perceived it affecting more than a few percent of his crop.

So again, what do you think? Have you seen this type of problem before? Were you able to associate a “cause” with it? What additional information would you like to have? What questions would you ask the prefinish grower? Stay tuned.



Homeland Security Steps Up Interior Immigration Enforcement

by John Wargowsky

Editor's Note: OFA is a sponsor member of MAAHS, a unique non-profit consortium of associations, organizations, and employers organized to improve the working and earnings environment for Mid American employers. One of the methods is to serve as a resource for a wide array of human resource issues through newsletters, manuals, a web site, phone consultation, and workshops.

Mid American Ag and Hort Services (MAAHS) is highlighting recent announcements and actions by the Department of Homeland Security (DHS). DHS unveiled a comprehensive immigration enforcement strategy for the nation's interior on April 20. It includes worksite enforcement designed to 1) punish knowing and reckless employers of illegal aliens, 2) eliminate Social Security abuses that support illegal immigration, and 3) work with Congress to build an employer compliance system. The complete news release is available at www.midamservices.org under "What's New."

Also on April 20, DHS announced that its Immigration and Customs Enforcement (ICE) investigative unit arrested seven managers of a nationwide pallet company and 1,187 of the firm's illegal aliens in 26 states. Roughly 53 percent of the firm's employees during 2005 had invalid/mismatched Social Security numbers. This news release is available at www.midamservices.org under "What's New."

MAAHS has received a number of calls from members concerned over this issue. As a result, MAAHS has compiled a set of links to MAAHS and governmental-published guidance to assist employers in complying with employment eligibility verification, Social Security "no match" letter handling and more. The link to this page may be found under "Immigration" at www.midamservices.org.

ICE is the interior investigative and enforcement agency within the Department of Homeland Security. One of the responsibilities of this agency is to ensure the departure of illegal aliens from the United States through the fair enforcement of the nation's immigration laws. There are three ways that ICE may contact you:

1. **An I-9 audit.** This is the most common way for an investigation to begin. If you are advised that ICE wishes to audit your records, you should ask for three days to prepare for the audit. It is advisable to contact a qualified attorney to assist you with this preparation.
2. **Arrest warrant.** An agent may have a warrant to arrest a person who is in the United States illegally and has committed a felony. In this case, you should discreetly cooperate with the agent with as little fanfare as possible. If ICE believes the person is armed and

dangerous, he may enter your property without seeking permission or even notifying you.

3. **Search warrant.** ICE or another federal or state agency may obtain an administrative search warrant based on probable cause of illegal activity. You should obtain a business card and a copy of the warrant, read the warrant, and allow the agency or person specified in the warrant to conduct the actions specified. Do not allow agents to enter the property, unless they have a search warrant. You should then contact your attorney.

What Should You Tell Your Workers?

Workers must be instructed that they should not run, that the safest place for them is at work, and that they may not grant permission for any government agent to enter your property. Crew leaders and workers should be prepared to give the name and phone number of the person or persons you have designated to work with state or federal agents who seek access to your property.

ICE agents may question any individual, and they have discretion to detain a person they encounter in a public place if the person he encounters lacks the legal right to be here, regardless of whether such person is the suspect being sought in connection with criminal activity. On the other hand, if workers remain within the confines of a private building or business, ICE may only detain the individual specified in an arrest warrant.

Workers should always carry valid identification and should be prepared to identify themselves to any law enforcement official.

Workplace Procedures

Develop a clear company policy regarding who can grant access to your property and post signs directing visitors to report to the office.

If you are confronted with an agent seeking access to your business, try to learn the purpose of the visit, obtain a business card, and determine which of the three circumstances from above (audit, arrest warrant, or search warrant) applies.

If you discover an agent on your property, identify the agent, politely ascertain his business, and ask to see any warrant. If the agent does not produce a warrant, inform him that you have not granted permission to enter, invite him to make an appointment, and ask him to leave. Contact your attorney or county sheriff to report the incident.

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Outdoor Potted Mum Trials and Research

by Mark Bridgen



Growing potted garden chrysanthemums is one of those mysteries of life. Growers continuously and emphatically state that there is no money to be made from potted mums. Why then, are there so many potted mums grown? There must be money to be made, and if growers would raise their wholesale price up from \$2.50 per pot, there would certainly be even more money to be made.

Chrysanthemums are a wonderfully traditional potted plant to grow. However, there is some confusion with chrysanthemum terminology. The words “pot mums” often indicate potted mums that were greenhouse grown. “Garden mums” are also grown in pots, but are often produced outside in the field. Recently, there have been new “perennial mums” that have been bred. What does this say for all of those individuals who for years have been selling “hardy mums”?

There are a variety of cultivars of chrysanthemums that are available from Yoder Brothers, GroLink, and Ball Horticultural. These three major suppliers of mums can offer rooted or unrooted cuttings. The rooted cuttings are more expensive, but save on labor and production time. There is a diverse range of colors possible for garden mums, and there are also many different flower forms available including anemone types, button mums, decorative, daisy, pompon, spoon tips, and spider mums. There are early-, mid-, and late-season cultivars that allow growers to spread the flowering time for crops throughout late summer and fall. In order to choose the best cultivar for your business, do not only consider the flower color and form, but also decide which characteristics are best for your situation. These include:

- how large the cultivar will grow (in what size pot will the plant be grown?),
- its flexibility (this is an important consideration for shipping),
- the season of bloom (is your market for early sales in August or late sales in October?), and
- the cultivar’s tendency to split as it grows (splitting is a problem for sales as shown in Figure 1).

The chrysanthemum plant is considered a short day plant, which means that it needs long nights in order to set flower. Of course, if garden mums are grown in the cooler parts of the country and are planted early, flower buds may initiate early regardless of the daylength. In the “old days,” mums were routinely pinched to increase branching. Nowadays, with the wonderful new cultivars that are available, pinching is not necessary. This is a hard concept to accept for those of us who were raised on pinching mums four to six days after planting. If you do not believe this, try it for yourself. Grow some plants that were pinched next to plants that were not pinched. If you

produce these plants under the same growing conditions, you will not see a visible difference in growth and performance by the end of the year. (In Part II of this article, in the next issue of the *OFA Bulletin*, data will be shown to support this.)

In order to grow potted garden mums outside, there are logistics to consider. They should be grown on a level, well-drained location. A level field is especially important if drip tape is to be used as a water source. Slopes may cause the water to run down along the tape rather than inside the pot. If spaghetti tubes or overhead irrigation are used, the plants can be grown on more of a slope. However, overhead watering is not the best irrigation technique because foliar diseases such as bacterial leaf spot can be a problem. The plants’ leaves should be dry before the evening. Landscape fabric should be used under the pots to prevent weed growth. Landscape fabric with spaced lines that are incorporated in the fabric is tremendously helpful for spacing pots properly and neatly.



Figure 1. Examples of ‘splitting’ chrysanthemums.



Successfully Growing Garden Mums

In order to successfully grow a garden mum, begin by choosing the best cultivars for your program. Visit trial sites in September and October, and decide which cultivars best meet your needs. It is especially important not to stress the plants during the first two weeks after planting. When rooted cuttings arrive, plant them immediately. If they cannot be planted, store the plants in a cool location (33 to 40°F), but plant as soon as possible. Plant the cuttings in a moist medium and plant them shallow, just covering the roots. Water the plants immediately after sticking and keep them well watered. Never allow young plants to wilt.

Fertilization is a critical part to the success of the potted mum crop. Fertigate the rooted cuttings immediately after planting with 250 to 300 ppm, and keep them fertilized well until the flowers form and are pea-sized. Stop fertilizing when the flower buds begin to show color, and they will have a longer postharvest life. Complete fertilizers with N-P-K are used at a constant liquid feed level of 250 to 300 ppm. Higher levels may be needed if there is cool weather, a bark medium is being used, or there is a rainy growing season. Some growers prefer a high ammonia fertilizer (20-20-20 for example) during the early stages of growth for good canopy development. High ammonia fertilizers can be dangerous if there is cool weather or low light levels. Nitrate nitrogen fertilizers, such as 20-10-20, 21-5-20, or 15-5-15, can be used to avoid the ammonia forms of nitrogen. The three to four month formulations of controlled release fertilizers (CRF) can be used as “insurance” or as the main source of nutrients for the potted mum. Medium to high rates (8 to 10 pounds/cu yd) can be incorporated in the growing medium. Use a liquid fertilizer, in addition to the CRF, for the first few weeks after potting rooted cuttings. If low levels of CRF are used, 250 ppm N should also be applied as a liquid fertilizer at least once a week.

As garden mums grow, a few plants should be knocked out of their pots occasionally and checked for proper root growth. Nice, actively growing, white roots should be visible rather than brown, soft roots. Root diseases will be avoided if, from the very beginning, a clean, well-drained soilless growing medium is used and the cuttings are planted into clean pots. Typically, garden mums are grown in plastic or fiber 8-inch, pan pots. Larger (9-inch, 12-inch, and 14-inch) and smaller (6-inch and 4-inch)

pots can also be used, but the planting date will be affected depending on the size used. Garden mums grown in 8-inch or 9-inch pots should be planted in mid- to late-June with one cutting per pot. Larger pots (12-inch to 16-inch) can be planted in July, but need three to four cuttings per pot. If “fast crops” in 4-inch or 6-inch pots are desired, they can be planted in mid-July with one cutting per pot.

Planting date is an art form for some of the seasoned growers of garden mums. At our location, we always plan to stick rooted cuttings during the week of June 22. At this planting date, the crop time is shortened, a nice and full plant is produced, and profitability is increased. Rooted cuttings can be planted earlier if more vegetative growth is desired. If they are planted too early, and the month is cool, there is the danger of premature flower bud formation. The pots should be spaced in their final location when the mums are planted to save on labor costs. It also allows the roots from the pot to sometimes grow into the landscape fabric and give some anchoring to the pot. The 8-inch pots can be spaced at 18 inches x 24 inches. Six-inch fast crops can be spaced 12 inches x 12 inches up to 15 inches x 15 inches. Space the pots properly to prevent that “stove top” appearance.

Insects and diseases are always a concern for growers. Mums can be attacked by aphids, mites, caterpillars, leafminers, and thrips. If your mum plants have these problems, contact your local Extension specialist for recommendations on their control. Diseases are another concern, but many of the diseases can be avoided by using proper sanitation techniques and beginning with clean pots, irrigation lines, and landscape fabric.

In the next issue of the *OFA Bulletin*, Part II of this article will discuss our research with potted garden mums. In 2005, 164 different cultivars from the three major producers of chrysanthemums were evaluated outdoors in 9-inch pots. Tables with their flowering dates and plant sizes will be given. Also presented will be data from our research that shows there is no need to pinch or to use Florel® as a pinch on garden mums.

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Floriculture at the University of Maine

by Lois Berg Stack, Stephanie Burnett, and Donglin Zhang

Floriculture is a team effort at the University of Maine. The program's research and teaching components are part of the Landscape Horticulture Program, which is housed in the Department of Plant, Soil and Environmental Sciences. In that program, Stephanie Burnett teaches and conducts research in floriculture. In Cooperative Extension, Lois Berg Stack conducts field research and works with the floriculture industry. Burnett and Stack collaborate with other University of Maine faculty members, Extension field faculty, colleagues at other institutions, and industry professionals. Through teamwork, they prepare students for careers in floriculture, conduct research that answers real-world questions, and educate industry members.

Teaching, Advising, and Internships

There are currently 85 students enrolled in the Landscape Horticulture Program (www.umaine.edu/lhc/). The program has four concentrations: business, horticulture therapy, landscape design, and science. The horticulture courses and electives each student takes varies depending on the concentration selected. However, all students take the core floriculture courses that Burnett teaches, herbaceous landscape plants and greenhouse management.

In both classes, Burnett uses on-campus resources, field trips, and industry guest speakers to provide students with hands-on experience. The Lyle E. Littlefield Ornamental Trial Garden and Research Center, directed by Brad Libby, and Stack's trial gardens are the northernmost ornamental trial gardens on the east coast of the United States. Burnett uses these resources to instruct students about what plants thrive in Maine's climate. In the greenhouse management class, students grow a crop of pot mums and tulips each spring in the Roger Clapp Greenhouse.

University of Maine horticulturist Donglin Zhang and Burnett have conducted class projects over the past few years that actively teach students the challenges of irrigating plants. This semester, the University of Maine Center for Teaching Excellence provided funding for greenhouse management students to design and build a drip irrigation system for their pot mums. At the beginning of the semester, only 25 percent of students with prior greenhouse experience had irrigated plants using drip irrigation. All students with prior experience had used hand watering to irrigate plants. The goal of this project is to provide students with experience irrigating crops in more efficient manners than through traditional hand watering.

Research and Field Trials

Stack conducts several field trial projects at Rogers Farm, the University of Maine's research facility for sustainable agriculture. These trials provide an opportunity for

greenhouse and garden center professionals, landscapers, home gardeners, and floriculture students to see first-hand which plants perform best in Maine gardens. At the farm, the field trials are located in the Penobscot County Master Gardener Display Garden. Master Gardener volunteers assist with planting, maintenance, and data collection. In 2005, a horticulture student completed his internship in the garden.

The field trials have three components. The first is an All-America Selections Display Garden that showcases recent award-winning annual flowers and vegetables. The field trials' second component showcases new introductions of vegetatively- and seed-propagated annuals, which Stack conducts with Extension colleague Gleason Gray. In 2006, these trials will include vegetative annuals from Proven Winners, Proven Selections, and Ball FloraPlant, and seed annuals from Ball Seed and PanAmerican Seed companies. Watch for the results in this fall's trade journals. For the third component, Stack trials shrub roses for winter hardiness, in collaboration with Leonard Perry at the University of Vermont. Since 1997, the Maine trials have tested over 150 species and cultivars of shrub roses. People are welcome to visit the field trials on their own. Each August, Stack and Gray host a field day for growers, in conjunction with the Mid Maine Greenhouse Growers Association (MMGGA), and a second field day for home gardeners.

Stack is collaborating on a new project with University of Maine entomologist Ellie Groden, to determine the winter hardiness and effectiveness of two parasitoids of lily leaf beetle. This pest has caused a decline in sales of lilies from greenhouses, garden centers, and landscapers, but the parasitoids offer hope of a non-chemical management technique that may help revive lily sales in the future.

Zhang and Stack have collaborated with several students in the past few years. They are working with Zhang's graduate student, Ajay Nair, to evaluate the usefulness of PGRs in managing powdery mildew on phlox and rudbeckia. They also worked with visiting graduate student Zhanying Gu from Central South Forestry Institute, Changsha, China, to study Florel's effectiveness in managing poinsettia height, and to survey consumers' poinsettia color preferences.

Burnett's research focus is to improve the efficiency of crop production in New England, especially regarding irrigation and fertilization. In collaboration with Marc van Iersel from the University of Georgia, she is researching a method for automating greenhouse irrigation using moisture sensors. This method of irrigation would be less labor intensive and would decrease water and fertilizer waste. Burnett also attempts to address grower-specific problems as needed. For example, she is working with Stack, Zhang, and USDA-ARS scientist Zhongqi He to



Academic Update

determine the effect of phosphorus on scaevola growth in response to grower interest.

Extension and Outreach

Maine's 750 commercial greenhouses range from very small size to nearly 3 acres. In addition, there are about 100 small-scale outdoor cut flower operations. In many cases, these operations are part of more diversified businesses. The University of Maine Cooperative Extension produces educational programs, publications, and support services for this industry.

Each January, Stack works with the Maine State Florists' and Growers' Association (MSFGA) to develop a day-long educational program for bedding plant growers. Also in January, Extension entomologist Jim Dill works with colleagues in Vermont and New Hampshire to produce the Tri-State Greenhouse IPM Workshops, held in all three states. This hands-on event has helped many bedding plant producers reduce their dependence on pesticides.

Stack works with colleagues from throughout New England and New York to develop the biennial New England Greenhouse Conference (www.uvm.edu/~pass/greenhouse/negc.html).

Greenhouse growers throughout New England rely on the New England Greenhouse Floriculture Guide: a Management Guide for Insects, Diseases, Weeds and Growth Regulators. Stack co-edits this publication with colleague Paul Lopes from the University of Massachusetts Cooperative Extension. In addition, University of Maine Cooperative Extension's entomologist Clay Kirby and plant pathologist Bruce Watt provide diagnostic services at no charge to the industry, and Stack interprets media tests.

Supporting Industry Leadership

Two exciting recent developments reflect the industry's emerging needs and the power of collaboration among industry members and the university.

The first development is Maine's Ornamental Horticulture Council (OHC). As in many states, Maine's ornamental horticulture industry is served by several trade associations: MSFGA, MMGGA, Maine Landscape and Nursery Association, Maine Arborists Association, Maine Christmas Tree Growers Association, and Maine Golf Course Superintendents Association. While each of these associations serves a sector of the industry, they joined together to form the OHC in 1996, to address issues of mutual interest. Over the years, this group has developed a marketing program, established a research fund at the University of Maine, produced a high quality display unit to promote the industry, and established a web site (www.ohcmaine.com). The OHC has also been

active in monitoring regulations and laws that affect the industry and informing individual businesses about how they can influence future regulations and laws.

The second development is the third tally of the economic impact of the ornamental horticulture industry in New England. Perry and Stack have worked with the New England Nursery Association to publish their third economic impact survey in 2006. New England's industry (businesses deriving at least 50 percent of their income from ornamental horticulture) is valued at \$4.6 billion (2004 figures). In Maine, the industry is now valued at \$315 million, up from \$286 in 2001. The survey also reveals that Maine's industry employs at least 10,800 people, including 5,000 full-time workers, and that businesses would hire an additional 1,600 people if they were available. From 2001 to 2004, more than 60 percent of the businesses reported an increase in gross sales, more than 50 percent reported an increase in cost of labor, and nearly 50 percent reported an increase in taxes paid.

What's Ahead for Maine Floriculture?

Burnett joined the faculty at University of Maine in July 2005, and is developing a strong floriculture research program. She also brings new energy to the classroom. Stack has firmly established ornamental crops as part of the program at Rogers Farm, giving the discipline greater visibility within the university. Zhang has refocused much of his work toward woody ornamentals, but he continues to collaborate on floricultural research. The industry continues to hire University of Maine students and gives them rave reviews.

The OHC has become a strong industry advocate in the agricultural, political and academic arenas, and is working hard to make horticulture a respected agriculture component. Its newly established research endowment fund is supporting two projects this year, and that's just the beginning. Come visit us, and see what we're up to!

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Raising the Bar on Safety

by Gary Hanson

When I visit a company to review their safety program, I always ask if they have a safety accountability program in place. Most of the time, the answer is no. The answer to this question often determines how much emphasis a company places on its safety program. Safety should be a key part of every company's management program. It should rank near the top of things each company does to be successful.

Ask yourself this question: is there anything more important than your employee's safety while they are working for you? I think that most of us would agree there isn't anything more important, yet many companies do not place sufficient emphasis on safety.

Granted no one wants an employee to be injured and most employees do not deliberately put themselves at risk for serious injury. The problem is that accidents are unexpected; no one plans to have one. They are, however, to a large extent preventable. In fact, 90 percent of all accidents can be prevented. I have reviewed thousands of accident investigations and discovered an interesting thing: it is not the big things that cause most accidents, it is the little everyday things that do. Most accidents happen from repeated activities that go unnoticed or unexpected. Employees get used to doing these and do not believe they are dangerous. Once engrained, changing this behavior can be very difficult.

Supervisors either do not recognize situations where unsafe behavior occurs or are reluctant to take corrective action. I see this frequently when I visit clients. I will see employees working unsafely, yet many times if I am with a supervisor they do not see it. I have also seen supervisors who are reluctant to enforce safety rules. I understand that supervisors are busy and have a lot of responsibility. I also recognize that most supervisors are reluctant to cause unnecessary problems and additional work.

Unsafe behavior and work conditions put employees at risk of injury and the company at risk to financial losses. This is unnecessary. Many companies recognize this and have taken the necessary steps to eliminate these situations. They have raised the bar on their safety expectations. Supervisors and employees recognize that safety is important to the company, and the company puts a high value on it. It starts with:

- A clear commitment from upper management that is communicated to all levels.
- Safety performance is not optional but demanded.
- Supervisors are held accountable.
- Effective training programs are in place for both supervisors and employees.
- Safety rules are enforced the same way other rules are enforced.
- Yearly safety goals are established.
- Employee suggestions are requested.
- Recognition and reward for good performance is provided.

Companies that have good safety programs establish high expectations for both supervisors and employees. There are no acceptable excuses for anything else. Employees understand the importance of working safely and thinking about their actions. Supervisors are held accountable for the safety of their employees. The safety performance of the company is measured and the result communicated to all employees. In other words, they have "Raised the Bar on Safety Expectations."

Safety is not a project or a program but an ongoing process aimed at continuous improvement. After all, aren't your employees worth it?

Gary Hanson

American Safety & Health Management Consultants Inc.

Article provided via

Compensation Consultants Inc,

Dublin, Ohio



Don't Miss Out on Your Monthly OFA E-Bulletin

Many OFA members are not receiving their monthly *OFA E-Bulletin* because their spam control is refusing the monthly e-mail we send to you. Please add ofa@ofanet.org to your address book or to your list of accepted addresses so you will receive this monthly benefit.

To make sure we have the correct e-mail address for you, visit the Members-Only section of the OFA web site and check the contact information we have on file.



ofa News

Adam Bennett Receives OFA/Jerry Robertson Scholarship

Dear Mr. Holmes:

I am a student at The Ohio State University. I am majoring in Landscape Horticulture and anticipate pursuing a minor in Entrepreneurship. I recently received the exciting news that I will be a recipient of the OFA/Jerry Robertson Memorial Scholarship to help with the costs of my education next school year. I am writing you to thank you and OFA for making this scholarship possible.

It has always been my dream to attend OSU and to study landscape horticulture. Two years ago my dream of attending OSU came true when I received my acceptance letter. Since my acceptance I have been working very hard in my studies and recently completed a web design course where I was able to assist floriculture department in redesigning their web site. I have also worked for a landscaping company to gain work experience.

Additionally, I was also recently elected to serve as Vice President for the Landscape and Floriculture Forum for next school year. In the future I hope to own my own business. I also look forward to learning more about and working with OFA in the coming years.

I truly feel blessed to have the opportunity to be a student at Ohio State, to be able to work in the landscaping industry, and to be involved in student activities. Especially as the cost of tuition increases, this scholarship will be a significant help to me and my family as I continue my studies at Ohio State. I will strive for excellence in all of my activities, remembering that my accomplishments will be directly related to the support that has been generously given to me by others.

With my sincere gratitude,
Adam Bennett

2006 Education Sessions on CD-ROM



SHORT COURSE

Get the 2006 OFA Short Course on CD-ROM! This interactive CD-ROM set includes live digital audio recordings, PowerPoint presentations and a DVD of the OFA Awards and Opening Session.

Post-Conf Prices
OFA Members: \$229
Non-Members: \$279



To Order: Call: 800.679.3646

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New OFA Board Members Elected

Active OFA members recently elected Doug Cole of D.S. Cole Growers in Loudon, New Hampshire, to a second term of OFA President, while Bobby Barnitz of Bob's Market in Mason, West Virginia, was elected to continue serving as the OFA Vice President. Five floriculture industry professionals were elected to serve a three-year term on the OFA Board of Directors.

Grower-At-Large Board Member: Peter Konjoian,
Andover, Massachusetts

Allied Trade Board Member: Kerstin Ouellet,
Fallbrook, California

Florist At-Large Board Member: Beth Mills, Carlisle, Ohio

Ohio Grower Board Members: Lisa Graf, Akron, Ohio and
Cathy Kowalczyk, Avon, Ohio

OFA Establishes New Tempory Web Site

OFA has established a new temporary web site at www.ofanet.org. This comes as the result of a foreign entity fraudulently gaining ownership of the www.ofa.org domain.

www.ofanet.org



2130 Stella Court
Columbus, Ohio 43215-1033 USA

Address Service Requested

OFA Event Calendar

July 8-11,
2006 **OFA Short Course**
- Columbus, OH

July 10,
2006 **Ohio Certified Florist
Written & Hands-On Tests**
- Columbus, OH

October 20-23,
2006 **OFA Board & Committee
Meetings**
- Louisville, KY

New Ohio Certified Florists

OFA congratulates Ami Benedict, AIFD, OCF and Rhonda Rehmke, OCF of Unique Designs in Dayton, Ohio, for passing the Ohio Certified Florist (OCF) test. A self-study certification program, the OCF program provides recognition for a standardized, professional level of knowledge and expertise in the retail florist industry. Unique Designs currently employees three Ohio Certified Florists. There are 15 Ohio Certified Florists.

OFA has owned its domain name since 1995 and has documentation proving ownership through 2015. However, a fraudulent transfer of that domain name ownership occurred in mid-June, resulting in the association losing this ownership. Until this issue is resolved, the new web site will serve as "Information Central" for all OFA and OFA Short Course information. You may contact OFA via e-mail at ofa@ofanet.org. We'll keep you posted!

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