

# ofa Bulletin

an Association of Floriculture Professionals

## Measure Profitability for Your Greenhouse Business



by Wen-fei Uva

When thinking about profitability, many greenhouse managers often first think about measuring resources or costs used to generate income from individual crops. Nonetheless, a majority of greenhouses produce more than one crop, and different crops are competing for the same limited resources of labor, time, and money. Therefore, when evaluating the bottom line, it is very important to take it a step further and look at the overall profitability and financial performance of the greenhouse business as a whole. This article will discuss key performance indicators that greenhouse managers can use to help them evaluate their business performance.

Profitability is measured as the level of net returns to the business operator(s) and unpaid family member(s) for their labor contribution, management effort, and equity capital. Financial performance can be evaluated by measuring profitability of the business, comparing the business with others in the same industry (benchmark comparison), tracking the business's performance over time (trend analysis), or assessing it against your own management objectives.

### Measuring Profitability of Your Greenhouse Business

Profit is the difference between sales and costs of production and is measured by constructing an accrual income statement – an income statement that makes accrual adjustments. An income statement is a summary of receipts and expenses for a specific accounting period (usually a year). Many greenhouse businesses keep records for tax purposes on a cash basis, which shows cash received and expended during the year. When income and expenses associated with a product are not incurred in the same accounting period, cash accounting needs to be adjusted to reflect the true receipts and expenses in that particular time period. For example, sometimes expenses are paid to purchase inputs to produce a crop in one year, but the crop is not sold until the following accounting year; or a crop is sold in one year, but payment is not received until the following accounting year. Work with your accountant to make those adjustments. If your income statement is based only on cash transactions, it may take a year to realize that a business is experiencing a loss or the extent of the loss.

An income statement lists receipts, expenses (variable and fixed costs), and profit (see Table 1, page 9). Some key indicators for profitability are expressed in the income statement in the following ways:

- **Gross Margin:** The difference between revenue and variable costs. It is often expressed as a percentage of sales. It is what is available to

contribute to fixed costs and profit after the variable costs have been paid.

- **Net Income or Profit Margin:** The difference between total receipts and total expenses (variable and fixed costs). Net income is the total combined return to the greenhouse operator and other unpaid family members for their labor, management, and equity capital.

In addition to providing information to calculate profitability, the income statement allows the business manager to evaluate levels of receipts and expenses. Greenhouse

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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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## Celebrating OFA's 75<sup>th</sup> Anniversary



by Kathy Benken

**Editor's Note:** This is the content of OFA President Kathy Benken's speech at the OFA business meeting during the OFA Short Course in July.

As we celebrate our 75<sup>th</sup> anniversary, I can't help but notice we are in good company.

*Automotive News*, Warner Brothers, Thompson Water Seal, the National Academy of Sciences, and Delta Airlines are just a few of those all celebrating their 75<sup>th</sup> anniversary this year.

Popeye, the pipe-smoking, spinach-eating sailor – champion of Olive Oyl and defender of all things righteous – also turns 75 this year. We all know what he said, "I yam what I yam and that's all that I yam, I'm Popeye the sailor man." Toot-toot. Popeye's theme song said a lot about him. He loved himself. He would change for no man or woman – not even for the lanky, raven-haired Olive Oyl.

But while OFA does share Popeye's anniversary, we do not so narrowly define ourselves, or our futures.

Not so ironically, for folks like us – champions of Mother Nature – defenders of floriculture – it all comes down to growth. Pursuing our own, supporting each other's growth, and

preparing fertile ground so our successors can one day carry on.

Several of our children work for me and my husband, Michael, at our florist and greenhouse operation in Cincinnati. They will be the fourth generation of Benkens to carry on what their great-grandparents, Harry and Johanna, began in 1939.

We are so typical of this industry. I am awestruck by the number of families, by the number of generations, who work day in and day out to keep the promises and dreams of their grandparents alive.

And that's why OFA continues to thrive. Because it is a communal effort, that betters the entire floriculture industry, and thereby, benefits the world.

It's no surprise then, that the OFA Short Course has enjoyed such great success and sustained growth, too. In 1964, for example, the then 50-booth trade show welcomed nearly 1,000 through its doors. In 1995, the Short Course broke all records, with 6,300 attendees and 675 trade show booths. Today, those numbers have more than doubled. 10,000 are expected to attend this year's show, visiting more than 1,330 trade show booths.

At Short Course, strong friendships are forged year after year. Generations unite with other generations. Fathers and mothers proudly introduce their children to OFA, the Short Course, and other members.

Coming to Short Course has always been the highlight of mine and Michael's year. It puts us smack in the middle of the newest and the best of what this industry has to offer, whether that's people, hard goods, or new plant introductions.

And what we don't officially learn in the education segments, we unofficially learn from "bar talk." (I call it bar talk whether you drink or not, because everyone just sits around and talks and talks and talks about their businesses.)

This year, as you experience the myriad of exhibits, I hope you'll notice the diamond theme that is woven throughout. Of course, diamonds are the traditional gift for the 75<sup>th</sup> wedding anniversary. This is fitting for OFA on a lot of levels.

Diamonds evolve over many years. They are borne of difficult times; they endure harsh conditions, much like a marriage and perhaps even more so, like a business.

But the sometimes dark mines of marriage, and business, only yield diamonds in the rough. Cut, color, clarity and carat – the four C's or aspects that determine a diamond's quality – come only when a professional has polished it to perfection.

And that's where OFA comes in.

Over the past 75 years, many an attendee, volunteer, educator, exhibitor, teacher, or student has experienced OFA in some form or fashion. We are and were, in many instances, diamonds in the rough. Like all diamonds, we come in various shapes and sizes, from small mom-and-pop businesses, to large multi-location, multi-million dollar producers, florists, wholesalers, and suppliers.

I like to believe, no I actually do believe with all my heart, that being a part of OFA has changed many a person and business over the years.

The expert diamond cutters are those who have shared, mentored, hugged, and helped to polish us into the gems we were meant to be.

The size of a diamond, like the size of a business, matters not. It is merely a symbol for the love and devotion that goes into making people and their businesses endure, that goes into making people and their businesses grow.

So ... "We are what we are, an association of floriculture professionals; and what we'll become for future generations is up to us."

I encourage you to get involved. I encourage you to share. To mentor. To hug and to polish. I encourage you to let OFA be the vehicle for your passion within this industry.



# Media pH Drift: Complications & Cures



by Roger C. Styer

In my consulting and speaking to greenhouse growers around the country, one of the hardest topics to get growers to understand and implement is the role of media pH in growing ornamental plants in peat-based media. I have had some growers attend several seminars before they can fully comprehend why they should measure media pH regularly, how to recognize symptoms

of low or high media pH, and how to correct the problem. On the other hand, there are some growing operations which do a very conscientious job of media pH testing and utilizing the results to grow consistently high quality crops year after year.

The reason we are concerned about media pH is the role it plays in controlling nutrient availability (Table 1). I think the easiest way for growers to understand the importance of media pH is to relate it to the speedometer in your car. You check your speedometer to make sure you don't go too fast and get a ticket, but also to make sure you are going fast enough to get to your destination on time. Have you ever driven a car where the speedometer was broken? If so, you were driving by the seat of your pants. That is not a good

Table 1. Nutrient availability changes with pH in peat-based media.

pH Range →	
5.5	6.5
<u>Excess</u> Manganese (Mn) Iron (Fe) Boron (B) Copper (Cu) Zinc (Zn) Sodium (Na) Ammonium (NH <sub>4</sub> )	<u>Excess</u> Calcium (Ca) Nitrogen (N)
<u>Readily Available</u>	
<u>Deficient</u> Calcium (Ca) Magnesium (Mg) Phosphorus (P) Potassium (K) Sulphur (S) Molybdenum (Mo)	<u>Deficient</u> Iron (Fe) Manganese (Mn) Boron (B) Copper (Cu) Zinc (Zn) Phosphorus (P) Magnesium (Mg)
← pH Range	
5.5	6.5

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## Media pH Drift: Complications & Cures

Continued from page 3

enough excuse to give to the cop who stops you for speeding, is it? So, think of media pH as your speedometer. When you get out of the desired range, bad things happen! By the time the plants show symptoms, it may be too late to correct and make them presentable for sale.

There are basically four factors influencing media pH (listed here in **decreasing** order of importance): 1) alkalinity of the water, 2) lime in the media, 3) type of fertilizer, and 4) the plant itself. First, think of alkalinity as lime in the water. The higher the alkalinity levels, the more lime in the water. This means that each

time you water the crop, you are adding lime and raising the media pH. Alkalinity levels for plugs should be 60 to 80 ppm, whereas bedding and pot crops can be at 80 to 120 ppm, depending on the container sizes. Remember, the smaller the container, the more often you water it, thereby raising the media pH. Second, almost all peat-based mixes have lime added to them to help raise the acidic pH of the peat moss. However, not all lime is the same. Hydrated lime (calcium hydroxide) reacts very quickly, but does not last. Calcitic (calcium carbonate) and dolomitic lime (calcium and magnesium carbonates) take longer to react, but last much longer. Particle

size of the lime, along with watering frequency, will determine how fast the lime activates. The smaller the particle size or the more often you water the crop, the faster the reaction of the lime will be. Third, your choice of fertilizer can change the media pH (Table 2). Fertilizers higher in ammoniacal nitrogen ( $\text{NH}_4$ ) and phosphorus (P) are acidic and will lower the media pH when applied. Fertilizers higher in nitrate nitrogen ( $\text{NO}_3$ ) and calcium (Ca) are basic and will raise the media pH when applied. Of course, how fast this occurs will be dependent on the type of fertilizer, ppm N used, and frequency of application. Finally, work by Dr. Paul Nelson at North Carolina

**Table 2. Common commercial fertilizers<sup>a</sup>.**

Fertilizer	$\text{NH}_4^b$ (%)	Potential Acidity <sup>c</sup>	Potential Basicity <sup>d</sup>	Ca <sup>e</sup> (%)	Mg <sup>e</sup> (%)
21-7-7	100	1560		--	--
9-45-15	100	940		--	--
20-20-20	69	583		--	--
20-10-20	40	422		--	--
21-5-20 (Excel)	40	418		--	--
15-15-15*	52	261		--	--
15-16-17*	30	165		--	--
20-0-20	25	40		5	--
17-5-17	24	0	0	3	1
17-0-17	20		75	4	2
15-5-15 (Excel)	22		141	5	2
13-2-13	11		200	6	3
14-0-14	8		220	6	3
15-0-15	13		420	11	--

<sup>a</sup> List of some commercially available fertilizers used for plugs and bedding plants. Not all formulations are the same from every company. Check the label!

<sup>b</sup>  $\text{NH}_4$  (%) is the total nitrogen percentage that is in the ammonium plus urea forms; the remaining nitrogen is nitrate.

<sup>c</sup> Pounds of calcium carbonate limestone required to neutralize the acidity caused by using 1 ton of the specified fertilizer.

<sup>d</sup> Application of 1 ton of the specified fertilizer is equivalent to applying this many pounds of calcium carbonate limestone.

<sup>e</sup> Only where % Ca or % Mg were 1% or greater.

\* Contains sodium nitrate (nitrate of soda), which adds unwanted sodium to plugs.

State University has shown that the plant roots can also change the media pH. Crops such as geraniums tend to push media pH down, while vinca tends to push media pH up. Both of these trends are not good for the crop, as we will see later. This change in media pH by the roots seems to only become important with well-developed root systems in the container; meaning the older the crop, the more the roots change the media pH.

When media pH gets too high (>6.5), certain crops will show symptoms sooner than others. These crops include vinca, pansy, petunia, calibrachoa, dianthus, snapdragons, and primula. Symptoms typically include interveinal chlorosis or yellowing of upper leaves, growing tip abortion, strapping or twisting of upper leaves, and stunted growth. To correct high media pH, you can use short-term or long-term solutions. To correct quickly, you can: 1) drench with iron sulfate at 1 to 2 pounds/100 gallons (rinse off plants immediately with water to avoid burning), 2) feed with very acidic fertilizer (I like to use 21-7-7), or 3) increase the acid if already using acid injection to drop the alkalinity to 0 and water pH down to 3.0 – 3.5. Long-term solutions include: 1) using acid injection to control water alkalinity in desired range, 2) checking how much lime was added to media, and 3) avoiding overuse of basic fertilizers.

When media pH gets too low, certain crops will show symptoms quickly. Seed and zonal geraniums, African marigolds, pentas, lisianthus, and New Guinea impatiens may show symptoms if media pH < 6.0, but most crops will not show symptoms until media pH < 5.4. Symptoms may range from marginal yellowing and necrosis of lower leaves, stippling or bronzing of lower leaves, overall yellowing and

stunting of plants, and stunted root growth. To correct low media pH in the short-term, you can: 1) drench with flowable lime (1 gallon/100 gallons) or potassium bicarbonate (2 pounds/100 gallons), making sure to use sufficient volume to get through the containers, 2) stop using acid injection, or 3) use a basic fertilizer such as 15-0-15. Long-term solutions include: 1) checking to make sure you have enough lime in the media, 2) control alkalinity only to desired levels and not lower, and 3) avoid overusing acidic fertilizers.

The most common problems I see with high media pH are usually due to not controlling alkalinity in the water with acid injection. Sometimes, there is too much lime in the media. When vinca plugs are held too long, the media pH will go higher, adversely affecting root growth after transplanting.

I seem to get more calls now where media pH is too low. This usually seems to be due to not enough lime in the media, because growers ask for lower media pH to start. Make sure you work closely with your mix supplier to **get the right amount of lime in the media for your water quality**. The media pH should come up to the proper range within the first two weeks after you start watering. Make sure to increase the media pH to 6.0 for crops such as seed and zonal geraniums, penta, lisianthus, African marigold, and NG impatiens. However, crops such as pansy, vinca, petunia, snaps, and others will like media pH 5.5-5.8 to grow best. Sometimes, growers are buying or making two different media for pH, or drenching the low pH-sensitive crops with liquid lime early on to bring up the media pH.

I will not get into how to test media pH in this article, but will refer you to the references at the end of this article for the details. Suffice it to say, you

need to have a good pH meter and use it every week. I would sample high pH and low pH-sensitive crops weekly and chart the results. You are looking for trends when managing media pH. Do not overreact to just one measurement. Back up your test results monthly with a lab test.

On longer-term crops, remember that the lime may run out and media pH will drop quickly (i.e. geranium stock plants); or the pH will rise or fall with more roots. Do not assume that every mix shipment you receive will be at the correct media pH for you. Test sample bags or bales, and test again after watering the crop for the first two weeks. Check your acid injector daily or weekly to make sure alkalinity levels, not just water pH, are where you want them to be. Check your fertilizer injectors with each use. When using most slow or controlled-release fertilizers, realize that they will be acidic in nature. If you change fertilizers to help you control growth, make sure you understand what they will do for media pH. Remember, if you wait for the plants to show symptoms, you already have crashed. So make sure your speedometer works!

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# Extending the Season – NOT!



by Judy Sharpton

The requested topic for this article was “Extending the Garden Center Season.” By that we mean extending the spring season. Despite all the evidence from consumers, suppliers, media, and even the big boxes, many members of the independent retail segment of this industry persist in focusing on spring as the time when the store’s economic life for the entire year is determined. Now, don’t get me wrong and don’t send any of those expert consultants after me. We better be ready to make spring work. That’s what our customers expect. They want to come to the garden at the first sight of a robin or a green shoot and begin again the recovery from winter cold and drab. Sometimes they want to do that sooner than we feel comfortable. Garden centers continually struggle with the question of when to provide product to eager consumers. If we don’t sell them what they want when they want it, customers can satisfy their spring urges with a host of local competitors, catalogs, and Web sites. If we do meet their expectations, we run the risk of compromising the very product integrity that is the basis of the consumers’ confidence. I even saw one newspaper ad this past spring that announced “We will sell them to you again after they freeze off!” Most retailers take a middle ground, stocking products that are more cold-tolerant and communicating the final frost date so customers can decide just how much chance they want to take in the name of early spring planting.

I suggest, however, that spring isn’t the end of our sales season unless we allow it. But, adopting the attitude of “extending spring” often results in poor

product mix decisions and degraded store presentation. I suggest the main reason we as an industry have trouble maintaining multiple sales seasons is primarily the result of our own history. There was a time when garden products were only available in the spring. There was a time when retailers sold only the crop they produced themselves. There was a time when grower/retailers sold the crop right where it was grown and had few options for restocking. There was a time when avid gardeners prided themselves on rows of tomatoes and beans and squash. Although some retailers persist with these retail models, those times are gone – and so should be the “spring” mentality. But that history still pervades the retail garden center. Staff is so tired at the end of the spring season that there is a mental shutdown. The store is left with leggy remnants of spring flats. Tables sit empty. The greenhouse heats to uncomfortable temperatures. Hardy and unsuspecting consumers who enter this environment react as they would in other poorly stocked and staffed retail presentations: “These people don’t have very much.” “Maybe I should be shopping somewhere else.” “Maybe I’ve waited too late to shop for my garden.” Because we believe the selling season to be over, we communicate that message to our customers. And the philosophy is self-fulfilling. An empty, tired-looking store fails to produce sales.

Instead of “extending the spring season,” let’s consider the possibilities for creating multiple sales seasons based on a basic consumer-driven philosophy: offering the customer the products she wants to buy in each sales season. Some of that is easy. We know color sells. So, whatever is in color in the particular sales season is our primary product offering. Some is more challenging.

Secondly, the customer shopping in summer, fall, holiday, and winter does not bring with her the anticipation of a long, leisurely gardening season spreading out before her. Beyond that difference, each selling season is

distinguished by specific limitations. Summer is a great time to entertain outdoors, prompting the need for products to enhance the deck or patio. At the same time, summer is cluttered with distractions like beaches, lakes, weddings, family reunions, soccer, baseball, fishing, tennis, picnics, and heat. Fall carries a tradition of harvest leading to winter. No need to plant now. Plus there’s back to school and back to football. We all know what the holiday season has become – a commercial blur. And winter. In some parts of the country, the only winter gardening is accomplished with the dreaded catalog.

But, let’s go back to the consumer-driven potential for offering the product the customer wants to buy in any given season. For summer, it’s a no-shovel, instant garden. Maybe with water added. That allows the store to focus on larger product, containers, and aboveground fountains and water features. Shade gardening is also a potential, including garden hats! How about a Red (Garden) Hat Society as an alternative to the traditional garden club? Plants for the summer season have never been better. ‘Endless Summer’ hydrangea and ‘Knock Out!’ rose are summer festivals all by themselves. The perennial garden becomes a prime sales asset during summer. If you have designed a pot-in-pot berm, you can create a display from summer inventory. Remember to create consumer-sized displays that feature a manageable number of plants that can be installed in-ground or in a container. Fresh hanging baskets and hayracks also offer no-shovel gardening.

Traditionally, garden centers have focused on trees and shrubs in the fall. Here again, color is key. Whatever is spectacular in the native landscape offers the best enticement for consumers to add to the garden. Fall is not a season of green, so make sure your tree and shrub inventory reflects the fall pallet; and, please don’t abandon Thanksgiving as a season for color. So

# ofa Garden Center

many families entertain at this season and so much product is available that you might just work some “Fall Magic” with fresh fall containers.

Now let’s talk about holiday. This is a sales season that has become so protracted and diluted by product in every possible retail channel that the best choice is to return to what brought us: fresh, live plants. We’re in the plant business. Garden centers that have maintained effective holiday sales have done it by adding value to our specialty products. Mixed poinsettia containers enhanced with ivy, ferns, and holiday decorations; custom wreaths; and large Christmas trees (delivered and set up) are the big three. I recommend to my customers that they stock their store with products for gardeners and add value to those products with special packaging and special product collections. If you must sell ornaments, select ones with a gardening theme.

Winter is the season to create spring. By that, I mean the cold days of winter can be the perfect opportunity to create anticipation not only for gardening but also for your store. Your opportunity is to bring the customer

into the warmth of the greenhouse. Schedule “sneak-a-peek” tours when you have plugs planted. Invite the customer to visit your store and exchange a garden catalog for a “Get Ready for Spring” coupon. Schedule seminars during this time of year to allow your customers to select your store even before the selling season begins. These kinds of in-store activities can even help you save on spring advertising; if you already have the customer’s attention, maybe you don’t have to buy quite so much TV or newspaper advertising during the spring season. Maybe you could even save some of your promotion dollars to support the entire year’s selling seasons. Winter is the time to sell your store to your existing customer base for the upcoming year. Here’s where that database you collected all last year becomes your next year’s asset.

Multi-season selling doesn’t just happen. It takes planning for products, promotions, and people. You must

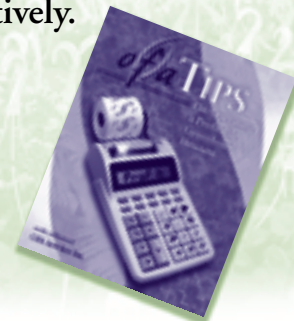
communicate during every season, in-store and out, that you are a fully functioning store. Although inventories may be less than the spring push, make sure all tables are either full or removed from the store. Keep the store, display gardens, and streetside planting looking clean and fresh. In other words, make a conscious decision to actively sell to the customer whenever your store is “open for business.” Most of all, multi-season selling is a way of thinking that sees the time after spring, not as a season to be extended, but as a series of selling seasons all driven by the desire to meet, and perhaps enhance, consumer expectations for your store.

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## Tips on Operating a Profitable Greenhouse

Coming this fall! The next book in the “OFA Tips...” series of publications will address greenhouse profitability. Growers throughout the United States have been looking for more information about increasing their profit margins and managing their operations more cost-effectively. OFA has developed this book specifically to address this challenge. The theme of the book is the basic equation: Profit = Revenue – Costs. Maximizing profitability in today’s greenhouse requires efficient management of BOTH costs AND revenue.



## Measure Profitability for Your Greenhouse Business

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managers should evaluate the top four or five key expenses in the operation to determine if changes will increase profits. Any change in expense must be compared to the expected effect on receipts. Reducing expenses does not always result in increased profits. In fact, in some cases, additional spending on certain items, such as fertilizer to improve product quality or advertising to expand marketing efforts, may increase sales and/or operating efficiency and in time increase net income. Look for the new *OFA Tips on Operating a Profitable Greenhouse Business* book (expected publication – fall 2004) for more detailed discussion on different receipt and expense items, and how to calculate them.

Other measures of economic efficiency often calculated from the income statement are:

- **The Rate of Capital Turnover:** This measure is an indication of how efficiently capital is being used in production. This equals the value of production per dollar of assets and is calculated by dividing the value of production (total receipts) by total capital (total business assets). The inverse of the capital turnover rate is the number of years it would take to produce products with a value equal to the total capital invested in the business. For example, a rate of capital turnover equal to 0.3 or 30 percent indicates the value of production is equal to 30 percent of the total capital invested in the business. This value means it would take 3 1/3 years to produce products with a value equal to the total capital investment.
- **The Ratio of Cost of Production Relative to the Value of Production:** This involves dividing cost of production by the value of production. It measures the input costs required to produce a dollar of output. When this ratio is equal or

greater than one, the business has zero or negative profitability.

- **Return to Capital:** This is also called the return on investment and is calculated by (net income – value of family unpaid labor – value of operator's labor and management + interest paid) divided by average capital investment. It is a measure of how effectively the business uses the money (borrowed or owned) invested in its operations. The goal for the rate of return to capital should approximate the interest on borrowed capital. When return on capital is expressed as a percentage of total assets, it allows easy comparison with returns from other investments. When the return on capital is lower than returns from other investments (i.e. stock markets, other companies) which you could potentially invest your money in, you should reconsider your opportunity costs of investing in the greenhouse business and your personal and business goals.
- **Return on Equity:** The rate of return on equity indicates the percentage return to the owner's personal or equity capital, and is calculated by net income divided by average owner's equity. It should be greater than rate of return to capital if any borrowed money is used in the business. It indicates that the average return on borrowed capital is greater than the interest rate paid for its use. The rate of return on equity is perhaps the most important measure of profitability, because equity is the capital which would be available for alternative investments if the business is liquidated.

### Evaluating Your Financial Performance – Benchmarking and Trend Analysis

Measures of efficiency are highly variable between different business types; and therefore should be compared to accepted or identified industry standards or financial benchmarks. Financial

benchmarks are numbers derived from a sample of similar businesses. Although benchmarks do not provide the right answer for what a business should be doing, they do provide managers with a reference point by which they can judge their own success. For example, a business with a net profit of 4 percent might be interested to know this is 1 percent above the average or benchmark for similar businesses (3 percent). Benchmarks provide a useful point of reference and another helpful measure of business success. Several types of benchmarks commonly used by the greenhouse industry for assessing performance when reviewing the income statement are: production efficiency (sales/square foot week), cost efficiency (total cost/square foot week), and labor efficiency (sales/worker equivalent or sales/dollar of labor expense).

As mentioned before, different business practices in different industries – even different business types in the same industry – will result in very different benchmark measures. Tables 2 and 3 (page 10) show some examples of greenhouse industry benchmarks by marketing channels (wholesale and retail) from surveying a group of New York greenhouses. There are several reasons why the financial benchmarks are different for wholesale and retail greenhouse businesses in this study. In general, the wholesale greenhouses in the study are larger and more established operations than the retail greenhouses in the same study. Moreover, wholesale and retail greenhouses face different customer and market demands. Wholesale greenhouses produce higher volume, but receive lower prices for their products. Increasing production and cost efficiencies is the key for improving profitability. On the other hand, retail greenhouses have more control over their product prices and receive the full end-consumer spending; however, retail usually requires more customer service, a more diversified product mix, and a more complicated pricing system.

**Table 1. This is an example of an annual accrual income statement for a representative greenhouse business with 40,000 square feet of production area\*.**

	Total Amount	Average \$/ft <sup>2</sup>	Average \$/SFW	% of sales
<b>RECEIPTS</b>				
Wholesale greenhouse crops	\$366,557	\$9.16	\$0.235	62.1%
Retail greenhouse crops	208,472	\$5.21	\$0.134	35.3%
Other income	<u>14,861</u>	<u>\$0.37</u>	<u>\$0.010</u>	<u>2.5%</u>
<b>TOTAL ACCRUAL INCOME (A)</b>	<b>\$589,890</b>	<b>\$14.75</b>	<b>\$0.378</b>	<b>100.0%</b>
<b>EXPENSES</b>				
<b><u>Direct Variable Costs</u></b>				
Hired Direct/Production Labor	\$159,890	\$4.00	\$0.102	27.1%
Seeds and Plants	109,802	\$2.75	\$0.070	18.6%
Fertilizer and Spray Chemicals	9,355	\$0.23	\$0.006	1.6%
Soil Mix Components	16,020	\$0.40	\$0.010	2.7%
Packaging Materials	28,478	\$0.71	\$0.018	4.8%
Hard Goods/Merchandise	31,672	\$0.79	\$0.020	5.4%
<b><u>Indirect Variable Costs</u></b>				
Hired Indirect/Office Labor	\$13,789	\$0.34	\$0.009	2.3%
Advertising	\$12,879	\$0.32	\$0.008	2.2%
Heating Fuel	36,457	\$0.91	\$0.023	6.2%
Gas/Diesel	4,301	\$0.11	\$0.003	0.7%
Electricity	8,570	\$0.21	\$0.005	1.5%
Water/Sewage	683	\$0.02	\$0.000	0.1%
Telephone	3,275	\$0.08	\$0.002	0.6%
Trucking/Shipping (Freight in and out)	8,857	\$0.22	\$0.006	1.5%
Greenhouse Tools and Other Misc. Supplies	1,763	\$0.04	\$0.001	0.3%
Sales Tax	<u>8,768</u>	<u>\$0.22</u>	<u>\$0.006</u>	<u>1.5%</u>
<b>Total Accrual Variable Costs (B)</b>	<b>\$454,559</b>	<b>\$11.35</b>	<b>\$0.289</b>	<b>77.1%</b>
<b>ACCRUAL GROSS MARGIN (A - B)</b>	<b>\$135,331</b>	<b>\$3.39</b>	<b>\$0.090</b>	<b>22.8%</b>
<b><u>Fixed/Overhead Costs</u></b>				
Interest	13,915	\$0.35	\$0.009	2.4%
Depreciation	20,243	\$0.51	\$0.013	3.4%
Insurance	14,097	\$0.35	\$0.009	2.4%
Repairs, Buildings	8,289	\$0.21	\$0.005	1.4%
Repairs, Equipment/Vehicles	9,919	\$0.25	\$0.006	1.7%
Property Taxes	5,314	\$0.13	\$0.003	0.9%
Lease/Rental	4,142	\$0.10	\$0.003	0.7%
Land Rent	7,462	\$0.19	\$0.005	1.3%
Office Supplies	4,388	\$0.11	\$0.003	0.7%
Professional Fees	3,922	\$0.10	\$0.003	0.7%
Education & Training	1,210	\$0.03	\$0.001	0.2%
Miscellaneous	<u>15,920</u>	<u>\$0.40</u>	<u>\$0.010</u>	<u>2.7%</u>
<b>Total Accrual Fixed Expenses (C)</b>	<b>\$108,821</b>	<b>\$2.73</b>	<b>\$0.070</b>	<b>18.5%</b>
<b>TOTAL ACCRUAL EXPENSES (D = B+C)</b>	<b>\$563,378</b>	<b>\$14.08</b>	<b>\$0.359</b>	<b>95.6%</b>
<b>ACCRUAL NET INCOME (A - D)</b>	<b>\$26,512</b>	<b>\$0.66</b>	<b>\$0.020</b>	<b>4.3%</b>

\* Source: Average accrual income statement for 45 New York greenhouse businesses, derived from their 2001 business records (Uva and Richards, 2003).

Continued on page 10

## Measure Profitability for Your Greenhouse Business

continued from page 9

Table 2. Examples of wholesale greenhouse financial performance benchmarks.		
	Average	Top 20%
<b>Profitability Measures</b>		
Net income per square foot week	\$0.034	\$0.070
% Gross Margin	30.8%	40.3%
% Profit Margin	8.1%	21.8%
Return on Equity	9.1%	48.04%
<b>Production Efficiency Measures</b>		
Sales per Square Foot Week Greenhouse Area	\$0.35	\$0.42
<b>Cost Efficiency Measures</b>		
Total Cost per Square Foot Week Greenhouse Area	\$0.32	\$0.18
Variable Costs as % of Sales	69.2%	47.4%
Fixed Costs as % of Sales	22.7%	13.7%
<b>Labor Efficiency Measures</b>		
Greenhouse Area (ft <sup>2</sup> ) per Worker Equivalent	8,502 ft <sup>2</sup>	14,564 ft <sup>2</sup>
Sales per Worker Equivalent	\$101,981	\$155,451
Hired labor cost as % of sales	24.1%	5.4%

\* Source: Data analysis derived from the 2001 business records of 45 New York greenhouse businesses (Uva and Richards, 2003).

Table 3. Examples of retail greenhouse financial performance benchmarks.		
	Average	Top 20%
<b>Profitability Measures</b>		
Net income per square foot week	\$0.026	\$0.114
% Gross Margin	26.2%	39.7%
% Profit Margin	2.5%	21.0%
Return on Equity	7.1%	23.9%
<b>Production Efficiency Measures</b>		
Sales per Square Foot Week Greenhouse Area	\$0.51	\$0.54
<b>Cost Efficiency Measures</b>		
Total Cost per Square Foot Week Greenhouse Area	\$0.49	\$0.30
Variable Costs as % of Sales	73.8%	57.2%
Fixed Costs as % of Sales	23.7%	11.3%
<b>Labor Efficiency Measures</b>		
Greenhouse Area (ft <sup>2</sup> ) per Worker Equivalent	7,115 ft <sup>2</sup>	8,494 ft <sup>2</sup>
Sales per Worker Equivalent	\$84,843	\$105,769
Hired labor cost as % of sales	23.1%	10.5%

\* Source: Data analysis derived from the 2001 business records of 45 New York greenhouse businesses (Uva and Richards, 2003).

There are many more types of benchmarks that could be used by greenhouse managers to evaluate their businesses. Individual businesses might find one analysis more useful than another. Relationships between benchmark measures are complex and should be considered in the context of production and business cycles. Benchmark analysis is part of the big picture. It can also help you communicate with your bankers or investors on how well your business is doing in comparison with others in your industry.

Industry benchmarks may not always be available for your type of business or your specific geography location. Therefore, in addition to comparing with others in the industry, another approach to assess your business performance is to evaluate the progress of your business over time or conduct a trend analysis. You will want

to compare the key variables – e.g. gross receipts, total expenses, labor expense or some other key expense item, net income, and net worth. This analysis will indicate how well you do over time and display the impact of different investment projects and business changes on your financial performance. You may also want to compare the growth trend of your receipts and income with a general economic index, i.e. the Consumer Price Index (CPI), to ensure that the growth of your business is keeping up with the general economic growth and inflation.

As greenhouse operators face more and more price and market pressure, accurately calculating costs and closely monitoring the business's financial health will be the first line of defense. While knowing your profitability figures and financial ratios is not a substitute for good management, it is an important tool to help you make

informed management decisions. The upcoming *OFA Tips on Managing a Profitable Greenhouse Business* will have more examples, worksheets, and tools to help you measure profitability and cost of production. Greenhouse operators need to set goals and measure performance throughout the year. This can lead to a shift in production and marketing efforts to more profitable crops and markets. Business success isn't simply "what you end up with," but something that is planned.

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## Status of the Specialty Cut Flower Industry and New Crop Development

by John M. Dole & Lane Greer

The United States cut flower industry grows and markets an incredible diversity of species including flowers, foliage, branches, and fruits. These cuts may be marketed fresh, dried, or preserved. The latter category involves treating cut stems with glycerine to allow them to be more flexible than dried flowers and last indefinitely. Cuts are categorized by production area and market domination: major greenhouse cuts, minor greenhouse cuts, and field-grown cuts (Table 1, page 18). The major greenhouse cuts are carnations, chrysanthemums, and roses. Many other species are also grown in the greenhouse as minor greenhouse cuts including astroemeria, lilies, lisianthus, gerberas, orchids, snapdragons, and tulips. Although classified as a minor greenhouse cut flower, lilies have become the most important domestically-produced cut flowers based

on sales, replacing roses in 2002. The production of field-grown cuts encompasses the broadest array of species; some of the most important of which are celosia, delphinium, gladiolus, iris, larkspur, sunflower, and zinnia. The phrase "specialty cut flower" originally referred to all species other than carnations, chrysanthemums, and roses and included the categories of minor greenhouse cuts and field-grown cuts. Specialty cuts are also known as "alternative greenhouse cuts," "field cuts," or "summer flowers," depending on the location and author. For example, summer flowers is the phrase commonly used in South America.

### History of United States Cut Flower Production

Cut flowers have always been an important part of civilization, as evidenced by their use in literature, art, and architecture. Much of that time however, cut flowers were harvested from local gardens. It is unknown

exactly when commercial cut flower production began, but it was reported in the early 1800s. Throughout the 1800s in the United States, commercial cut flower production remained close to markets because of poor roads and lack of refrigeration. In the early 1900s, cut flower production began to centralize as the development of trucking allowed cuts to be produced in one location and shipped to market. The perishability of cut flowers prevented shipping over long distances, however, localizing production around population centers. Continual improvements in shipping ability and refrigeration during the 1900s increasingly allowed flowers to be shipped longer distances. The process escalated in the 1950s, when shipping via refrigerated trucks or air from anywhere in the United States became practical. Centralization of cut flower production accelerated as growers were able to take advantage of specific

*Continued on page 17*

# Update from the University of Arkansas



by  
Michael R.  
Evans



and  
Gerald  
Klingaman

Located in the Ozarks of the northwest corner of Arkansas, the University of Arkansas is the land-grant institution for the state of Arkansas. Although the area is often simply referred to as northwest Arkansas, the metropolitan area is comprised of the cities of Fayetteville, Springdale, Rogers, and Bentonville. In addition to being the home of the University of Arkansas, the cities are home to several international corporations including Wal-Mart, Tyson Foods, and J.B. Hunt Transportation.

The Department of Horticulture at the University of Arkansas has been well known for decades for its contributions in the area of fruit and vegetable breeding. Names such as Drs. Jim Moore, Curt Rom, and John Clark are synonymous with fruit breeding and production. In 1998, a decision was made to expand the ornamental horticulture programs of the department. The first step in this expansion was the transfer of the turfgrass program from Agronomy to Horticulture. The turf program now has three faculty involved in turf research, teaching, and Extension.

Another step taken was to expand the greenhouse management and floriculture program from one to two faculty members. With that decision, Dr. Michael Evans (Ph.D., University of Minnesota) was brought to the University of Arkansas from Iowa State University in 1991 to join Dr. Gerald Klingaman (Ph.D., University of Maryland) who was already involved in floriculture. Since that time, the program has continued to grow and to make contributions toward helping

the floriculture industry in the United States.

The greenhouse management and floriculture program at Arkansas is active in all of the traditional land-grant activities of teaching, research, and Extension.

## Teaching Programs

The undergraduate teaching program at Arkansas is in most respects similar to programs around the United States. Students complete numerous courses in arts, sciences, business, and horticulture. Students focusing on greenhouse management/floriculture also complete courses in perennial plant materials and plant propagation taught by Dr. Klingaman and greenhouse management and floriculture taught by Dr. Evans. All floriculture students are required to complete at least one internship. Most floriculture students complete two internship activities, and many conduct undergraduate special projects.

Dr. Evans also spends significant time on developing alternative technologies to improve teaching. He has developed *Greenhouse Management Online*, an interactive Web-based alternative to traditional textbooks (<http://www.uark.edu/~mrevans/4703>). This site is designed not only to save students money on textbooks, but to provide students with an improved learning resource. The site presents information on various topics of greenhouse management in 12 learning units. Information is presented using text, tables, graphs, color images, and videos. Each learning unit also contains links and a self-examination. Although the site was designed for undergraduates, many growers have been using the site for training employees.

## Research Programs

### New Substrate Components

Dr. Evans' research program is focused on growing media. One of the major focuses within this program is the development of alternative growing media components with either improved properties or lower costs.

Perlite is used to provide drainage and air space in growing media. However, because of the costs associated with mining, shipping and "popping" the ore, perlite is one of the most expensive components used to formulate growing media. Dr. Evans' research group has devoted significant effort in developing potential alternatives to perlite. Most of the materials tested have been shown to generally be unsuitable. For example, ground rubber tires often had phytotoxic levels of Zn. Washed and ground bovine bone had a high pH, and high levels of salts leached from the bone during the first few weeks of use.

One material that has proven to be a suitable perlite substitute in most situations is parboiled fresh rice hulls. Dr. Evans, graduate student Mary Gachukia, and research technician Heather Quinney (M.S., University of Arkansas) found that parboiled fresh rice hulls do not cause detectable nitrogen tie-up, are weed free, and are consistent in their properties. Parboiled fresh rice hulls are relatively large in size and angular, so they create large pores in growing media and provide for drainage and air-filled pore space in a manner similar to perlite. Best results were typically achieved when 20 percent to 35 percent of the growing media was comprised of fresh parboiled rice hulls. Dr. Evans' research group is continuing to look at various types of substrate components that can be made from processed fresh rice hulls.

The research group has also looked at other materials designed to serve as alternatives to peats and composted barks. These have included coconut coir, cotton gin trash, and others. Dr. Evans and graduate student Leisha Vance worked with processed poultry feather fiber as a growing media component. Feather fiber was produced from waste feathers that had been washed, disinfested, and ground. Feather fiber serves to hold water and nutrients much as does peat. Typically, feather fiber was most effectively used

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at 20 percent to 25 percent of the total volume of the growing media.

## Control of Soilborne Fungal Diseases

Another area of emphasis for Dr. Evans, and research associate Dr. Ramsey Sealy, is the control of soilborne fungal diseases of greenhouse crops, especially those caused by *Pythium* species and *Phytophthora* species.

The group demonstrated that coconut coir is disease-suppressive and that the mechanism for this suppressiveness is chemical rather than biological (coir may be sterilized without a loss of suppressiveness). Different sources of coir appeared to have different levels of suppressiveness. This may be due to coir source, age, or processing. Typically only substrates containing at least 60 percent coir showed significant disease suppression. Growing media with only 10 percent or 20 percent coir did not display suppressiveness.

Dr. Evans' group has also looked at materials such as garlic extract, waste pepper pulp, and various commercially available surfactants as means of controlling soilborne fungal pathogens. Garlic extract was very effective at killing fungal pathogens in the laboratory. However, to kill pathogens in peat-based growing media, very high concentrations of garlic extract were required, and these concentrations resulted in significant phytotoxicity. Waste pepper pulp also displayed anti-fungal properties in the laboratory and in peat-based substrates in the greenhouse, and it holds promise as a possible natural fungicide.

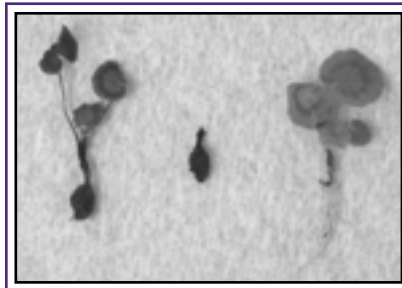
Two areas that the research group is currently working on are the use of single or multiple biological organisms for the control of soilborne fungal diseases and the potential of rice hull-based substrates to be disease-suppressive.

## Control of Amaryllis Flowering for Cut Flower Production

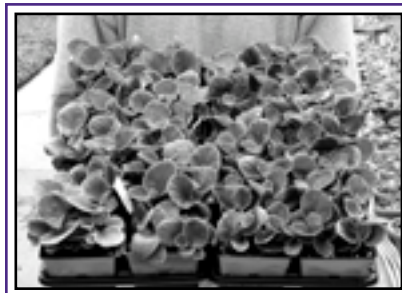
Dr. Klingaman and graduate student John Kihia have been studying the control of flowering in amaryllis to improve flowering and reduce production time. They have developed optimal storage and production conditions for cycling amaryllis to reduce production time and maximize production.



*Coleus grown in substrates containing 0 percent, 15 percent, 20 percent, and 25 percent feather fiber.*



*Geranium inoculated with Pythium ultimum in growing media containing 0 percent, 2 percent, or 25 percent pepper pulp.*



*Begonia from commercial greenhouse trial – 20 percent parboiled fresh rice hulls (left) and 20 percent perlite (right).*

## Plant Material Evaluations

Dr. Klingman conducts numerous plant trials in the Horticulture Gardens at the University of Arkansas. He has also conducted an extensive poinsettia trial program for many years. These trials are designed to help both growers and consumers select cultivars best suited for the unique conditions of the south-central United States.

## Extension Programs

Dr. Klingaman is responsible for floricultural Extension in Arkansas. The primary outreach activity is the Arkansas Green Industries Expo held in Hot Springs, Arkansas each April. This educational meeting focuses on all of the ornamental horticulture industries and has a specific section devoted to greenhouse crops. Another meeting conducted each year is the Mid-South Greenhouse Growers Conference. This meeting is a joint activity among Mississippi, Louisiana, and Arkansas and is designed specifically for the greenhouse crop industries.

## Summary

The floriculture program at the University of Arkansas is very active in teaching, research, and Extension. The teaching program is designed to help train the next generation of floriculture professionals, and we are working constantly to improve the undergraduate learning experience. The research programs are focused primarily on improving our understanding of growing media and the growing media environment. The Extension program is broad-based and incorporates applied research and plant trials to help growers in the south-central United States become more efficient and profitable.

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ofa

# Western Flower Thrips Management: Where are We? And Where are We Going?

by Raymond A. Cloyd

Do you remember when, as a greenhouse manager, to control Western flower thrips (*Frankliniella occidentalis*), you made between 15 to 20 spray applications using an assortment of different insecticides including a number that were extremely toxic to humans – formetanate (Carzol®), oxamyl (Vydate®), and methomyl (Lannate®) – per cropping cycle? Then the insecticide spinosad (Conserve®) became available to the greenhouse industry and proved to be one of the most effective insecticides for controlling Western flower thrips.

Western flower thrips gained national prominence as a major insect pest in commercial greenhouse production systems in the early 1980s as biological and behavioral information based on research conducted worldwide became readily available. This research highlighted reasons why Western flower thrips has become a problem, including 1) high reproductive rate, 2) rapid life cycle, 3) multiple generations per year, 4) cryptic feeding habit, 5) wide host range, 6) ability to vector viruses, and 7) ability to develop resistance to many insecticides used by greenhouse managers.

The primary method of dealing with Western flower thrips has been the use of insecticides. Applications of insecticides (prophylactically) are routinely performed due to the low tolerance for Western flower thrips presence and damage. When evaluating Western flower thrips management in greenhouse production systems, it is quite evident that problems encountered with thrips species including Western flower thrips have not really changed since the 1950s. For example, a publication dating back to 1939 (Haseman, L., and E. T. Jones. 1939. Greenhouse pests and their control. University of Missouri College of Agriculture, Agricultural Experiment Station Bulletin 342) describes many of the same insect and mite pests including thrips (although this

publication does not explicitly mention Western flower thrips) that are being dealt with today by greenhouse managers. The only items that really change are the number and types of insecticides used to control greenhouse pests such as Western flower thrips.

Greenhouse managers spray regularly, sometimes two to three times per week depending on the season, and are told to rotate insecticides with different modes of activity to minimize the potential for Western flower thrips populations to develop resistance. This recommendation is the primary means of preserving the “life” of currently available insecticides. The introduction of Conserve® has provided greenhouse managers with a very effective insecticide for controlling Western flower thrips. When I started conducting research and efficacy studies with Conserve® three years prior to its introduction, it was quite evident that the insecticide would be one of the best materials to come along for Western flower thrips control; however, there was concern that the introduction of a new insecticide with the effectiveness of Conserve® would lead to “overuse” by the greenhouse industry. As such, many greenhouse managers initiated rotation programs that avoided the exclusive use of Conserve® for Western flower thrips control. Rotating Conserve® with insecticides/miticides such as methiocarb (Mesuro®) and abamectin (Avid®) has been an effective strategy in reducing Western flower thrips numbers on many horticultural crops. This is a very sound rotation scheme because all three insecticides/miticides have different modes of activity.

Greenhouse managers are very fortunate to have several effective insecticides available for controlling Western flower thrips. However, the “days” of waiting in anticipation for the next “potent” insecticide may be gone, because there doesn’t appear to be another insecticide like Conserve® available in the near future. In efficacy studies we have been conducting at

the University of Illinois, we have not found anything with the same level of effectiveness on Western flower thrips as Conserve®. As a result, greenhouse managers need to “conserve” Conserve® by practicing proper insecticide stewardship and implementing rotation programs that do not rely solely on Conserve® to control Western flower thrips. Greenhouse managers need to continue rotating Conserve® with other insecticides/miticides including Avid®, Mesuro®, acephate (Orthene®), and insect growth regulators such as novaluron (Pedestal®) and kinoprene (Enstar II®) to minimize the development in thrips of resistance to any particular insecticides or miticides recommended for Western flower thrips control.

I would like to play “devil’s advocate” and say, what if insecticides such as Conserve®, Avid®, and Mesuro® and others eventually fail to effectively control Western flower thrips? The reason I mention this “nerve-racking prospect” is that it is important to understand that many of the newer insecticides/miticides and several insecticides that have been around for some time don’t have the same broad level of activity on the larvae and adult stages as Conserve® does. For example, the insect growth regulators Pedestal® and Enstar II®, although very effective materials, are only effective on the larval stage of certain insect pests including Western flower thrips. Additionally, Western flower thrips’ metamorphosis, or change in form, is different from other greenhouse insect pests. As a result, insect growth regulators may not be as effective. Also, a number of the newer insecticides/miticides are active on only a few selected pests; and Western flower thrips may not be included.

Insecticides should not be the sole strategy in dealing with Western flower thrips. They must be accompanied with alternative management practices including removing old plant and

**Table 1. Alternative Western flower thrips, *Frankliniella occidentalis*, management strategies that are being researched or have been developed worldwide in laboratory and greenhouse environments.**

1. Use of biological control agents such as the predatory mite *Neoseiulus* (= *Amblyseius*) *cucumeris*, entomopathogenic or beneficial nematodes (*Steinernema feltiae* and *Thripinema nicklewoodii*), and entomopathogenic or beneficial fungi (*Beauveria bassiana*).
2. Enhancing the foraging behavior and effectiveness of the predatory mite *Neoseiulus* (= *Amblyseius*) *cucumeris* by spraying plants with pollen.
3. Use of tolerant plant types or cultivars.
4. Use of controlled atmospheres such as oxygen, temperature, and/or carbon dioxide to kill Western flower thrips.
5. Either decreasing or increasing temperature, fertility, and moisture regimes will reduce Western flower thrips populations and minimize plant damage.
6. Use of trap crops to lure or attract Western flower thrips away from the preferred crop.
7. Repelling Western flower thrips from the main crop by using pest control materials that have repellent properties, such as hot pepper wax.
8. Developing action thresholds and scouting techniques to better time insecticide applications.

growing media debris, removing weeds from both inside and outside the greenhouse, and installing micro-screening. Table 1 lists a number of additional alternative thrips management strategies that greenhouse managers might consider as part of their overall Western flower thrips management program.

Greenhouse managers are primarily concerned with Western flower thrips because they can directly cause damage to foliage and flowers – thus reducing crop marketability. However, there is an additional concern because Western flower thrips can also vector viruses (i.e. impatiens necrotic spot virus and tomato spotted wilt virus), which means that the “actual” threshold for certain susceptible crops including begonia, impatiens, and cyclamen is at or near zero (the cockroach threshold). As a result, many of the alternatives listed in Table 1, although viable possibilities,

may not reduce Western flower thrips numbers low enough; but continually using insecticides is not the answer.

Biological control agents or natural enemies such as predatory mites, predatory bugs, and beneficial nematodes have been used worldwide in certain situations to manage Western flower thrips. In fact, a number of greenhouse operations in the United States have implemented biological control programs for Western flower thrips and have achieved some level of success. However, biological control of Western flower thrips is more difficult (although not impossible) than other greenhouse plant-feeding insects and mites. To enhance the use of biological control, research is being conducted on the compatibility of certain insecticides including Conserve® with natural enemies of Western flower thrips, so both management strategies can be used in conjunction in sustainable cropping systems.

As long as ornamental plants that are susceptible to Western flower thrips are grown in greenhouses, then in many cases, insecticides will be used. However, implementing proper rotation schemes and alternative strategies will alleviate having to rely solely on insecticides – thus avoiding the prospect of not having “anything” available to effectively manage Western flower thrips in the future.

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# Successful Thrips Management in Production Houses – Using Predators

By Deborah Sweeton

**Editor’s Note:** Deborah and her husband Michael own Techni-Growers Greenhouses Inc., a wholesale/retail (50 percent/50 percent) operation with 55,000 square feet of production area, plus 1+ acres of outdoor growing space associated with the retail area. Deborah was the recipient of the 2001 New York State Excellence in IPM Award.

I have been the production manager/grower for our operation since 1985, and as grower I am responsible for 95 percent of the pest management. Fairly soon after becoming a grower, I realized that the only thing I didn’t like about my job was the spraying! About the same time, I started reading about integrated pest management (IPM) in New York. It was in its infancy, but I found it intriguing. I learned what I could and started scouting and teaching employees how to scout. I realized pretty quickly that I didn’t have to spray the entire operation weekly. I started spot spraying, with good results. Just about the time that I had the IPM concept pretty well in hand, along came the scourge of thrips. There went my IPM strategies out the window (or plastic)! I began to read everything there was about thrips management. At the same time, our retail trade was increasing and I was trying to determine how not to use chemicals in the area where our

customers regularly visited. In 1996, Christine Casey was working in New York for the IPM program, and she approached us about running some trials in our retail greenhouse using a thrips predator, *Neoseiulus cucumeris*. The first year was marginally successful, but we had enough encouraging results to continue. In 1997, we were much more successful due to earlier releases, and I have been using the thrips predators ever since. In 1999, we ran a trial in one of our wholesale production houses, a 30 x 96-foot quonset, with one control house. In 2000, we used two houses and two controls, comparing delivery methods.

We specialize in growing tuberous dahlias; they are our major spring crop, and they are heaven on earth for thrips! We have successfully controlled thrips on our dahlia crops since 2001. Two of the past three years, I have not had to spray the dahlias (we grow 20,000) in April or May. This year, due to delays in shipping of the predators, I had to do a rescue spray on two of the six plantings. We also use the predators on our tomatoes, dracaena spikes, lantana, and verbena.

When using predators, there is a certain level of commitment involved. I found the planning process interesting and challenging, and I enjoy out-

smarting the little buggers! I’ve also had to make the commitment to use softer chemicals when spraying for other insects, and we also use quite a bit of systemic insecticides. (This is why I don’t have to spray very often.) For the last four years, I have averaged 10 sprays/year, and most of them were spot spraying or fungicide applications. We have found that since we are using so many predators in all of the greenhouses, I don’t have to spray for thrips on any of the plants until we get to late May, early June when the thrips pressure from the alfalfa fields across the street becomes too much for the predators to handle.

The other benefit we have noticed since using “softer chemistry” is that overall there are more beneficial insects coming in from outside and doing some of my work for me. Don’t get me wrong, if there are insects on anything we are growing, I’m out there spraying to control them. My goal every spring is not to have even one plant returned due to insects!

I would like to share my schedule for releases with you – bearing in mind that every greenhouse will be different, depending on temperatures, crops, length of growing time, etc. This is an example from which you could build your own program. All it takes is a

Table 1. Example thrips management schedule.

	Release #1	Release #2	Release #3
#1 Planting	25,000 on 3/17	25,000 on 3/31	
#2 Planting	50,000 on 3/24	75,000 on 4/7	
#3 Planting	60,000 on 3/31	100,000 on 4/14	100,000 on 4/28
#4 Planting	50,000 on 4/7	75,000 on 4/21	
#5 Planting	50,000 on 4/14	62,000 on 4/28	
#6 Planting	50,000 on 4/21	75,000 on 5/5	
#7 Planting	35,000 on 4/28	50,000 on 5/12	

reliable supplier, dedication to timing, and some planning.

The recommended release rate for *Neoseiulus cucumeris* is 10 to 100 predators per square foot either weekly or biweekly. I have been successful using 25 to 30 predators/square foot on tuberous dahlias, spikes, tomato, lantana, and impatiens. I make two releases to most of my dahlia plants – the first when the crop has enough foliage to support releases and the second two weeks later. On dahlia plantings that reach sales maturity during early May, I make a third release the week before shipping to ensure that

I won't have to spray during the busiest weeks. The list price this year for *cucumeris* was \$16.00 plus shipping for 25,000. They are shipped UPS, and I receive them the next day since the company is in New York. Since I purchase almost 900,000 insects total, my prices are less. The example in Table 1 is the schedule that I used for this spring.

The cost per dahlia for the predators is less than \$.03/plant. It actually is less since I am using predators on other crops that are growing near or with the dahlias. I can apply the predators during regular

working hours or could have an employee do it if I wanted to. It takes about 15 to 20 minutes to apply 25,000 predators, so on my worst week it took a little more than an hour to apply. No more waiting for all to go home so I could suit up and spray ... what is that worth?!

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## Status of the Specialty Cut Flower Industry and New Crop Development

*continued from page 11*

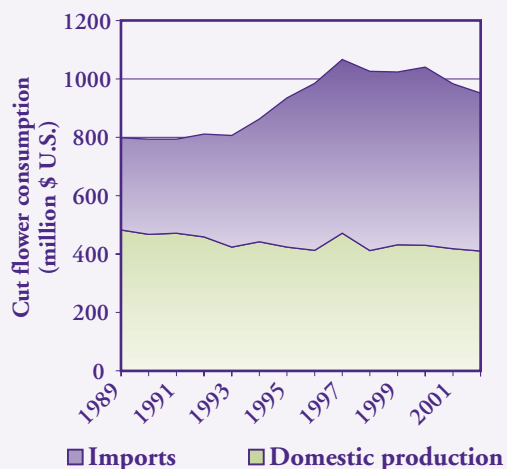
climates to produce high-quality crops. Thus, Colorado specialized in carnations and roses, Florida in chrysanthemums and gladiolus, and California in virtually all cut flower species. Field-grown cut flower production was still common in the 1950s, but the improvement in flower quality and timing control from

greenhouse production was making the latter especially attractive. By 1966, another significant event occurred with the first carnation and chrysanthemum production in Columbia.

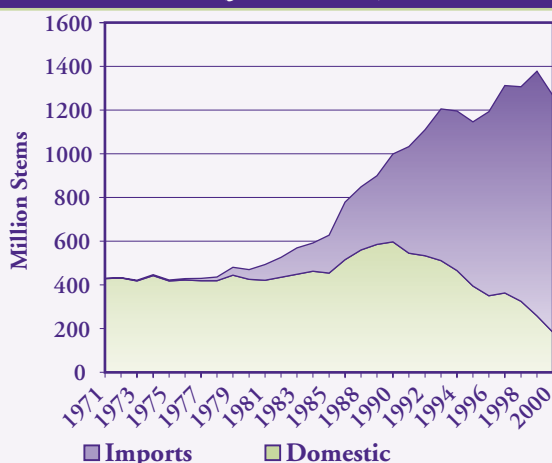
During the 1970s and 1980s, relatively few cut flower species comprised the majority of the United States' production and sales. As recently

as 1986, four cut flower species – carnations, chrysanthemums, gladiolus and roses – accounted for more than 80 percent of total cut flower production. California was the most important state for cut flower production, producing more than half of the cut flowers grown in the United States. Much of the production occurred in greenhouses

**Figure 1. Consumption of cut flowers from 1989 to 2002 (Jerardo, 2003).**



**Figure 2. Number of domestically-produced and imported cut rose stems from 1971 to 2002 (Jerardo, 2003).**



*Continued on page 18*

# Status of the Specialty Cut Flower Industry and New Crop Development

continued from page 17

**Table 1. Categorization of species used for their flowers, foliage, stems, and/or fruit.**

<b>Major Greenhouse Cuts</b>				
<i>Rosa</i>	<i>Dianthus</i>	<i>Dendranthema</i>		
<b>Minor Greenhouse Cuts</b>				
<i>Alstroemeria</i>	<i>Delphinium</i>	<i>Iris</i>	<i>Narcissus</i>	<i>Solidago</i>
<i>Anemone</i>	<i>Dianthus</i>	<i>Lathyrus</i>	<i>Nerine</i>	<i>Solidaster</i>
<i>Antirrhinum</i>	<i>Euphorbia</i>	<i>Liatris</i>	<i>Orchids</i>	<i>Trachelium</i>
<i>Aster</i>	<i>Freesia</i>	<i>Lilium</i>	<i>Ornithogalum</i>	<i>Triteleia</i>
<i>Callistephus</i>	<i>Gentiana</i>	<i>Limonium</i>	<i>Papaver</i>	<i>Tulipa</i>
<i>Campanula</i>	<i>Gerbera</i>	<i>Lineria</i>	<i>Ranunculus</i>	<i>Zantedeschia</i>
<i>Clarkia</i>	<i>Eustoma</i>	<i>Matthiola</i>		
<b>Field-grown Cuts</b>				
<i>Achillea</i>	<i>Capsicum</i>	<i>Dodecatheon</i>	<i>Jasminum</i>	<i>Platycodon</i>
<i>Aconitum</i>	<i>Carlina</i>	<i>Doronicum</i>	<i>Kalmia</i>	<i>Polianthes</i>
<i>Agapanthus</i>	<i>Carthamus</i>	<i>Echinacea</i>	<i>Kerria</i>	<i>Polygonatum</i>
<i>Agastache</i>	<i>Caryopteris</i>	<i>Echinops</i>	<i>Kniphofia</i>	<i>Poncirus</i>
<i>Ageratum</i>	<i>Catananche</i>	<i>Emilia</i>	<i>Koeleruteria</i>	<i>Pontederia</i>
<i>Agrostemma</i>	<i>Celastrus</i>	<i>Eremurus</i>	<i>Lavandula</i>	<i>Primula</i>
<i>Alcea</i>	<i>Celosia</i>	<i>Erica</i>	<i>Lavatera</i>	<i>Prunus</i>
<i>Allium</i>	<i>Centaurea</i>	<i>Eryngium</i>	<i>Liatris</i>	<i>Reseda</i>
<i>Amaranthus</i>	<i>Centranthus</i>	<i>Eucalyptus</i>	<i>Limonium</i>	<i>Rhodanthe</i>
<i>Ammi</i>	<i>Cephalaria</i>	<i>Euonymus</i>	<i>Lobelia</i>	<i>Rosa</i>
<i>Ammobium</i>	<i>Chamaelucium</i>	<i>Eupatorium</i>	<i>Lonicera</i>	<i>Rubus</i>
<i>Amorpha</i>	<i>Chasmanthium</i>	<i>Euphorbia</i>	<i>Lunaria</i>	<i>Rudbeckia</i>
<i>Anaphalis</i>	<i>Chelone</i>	<i>Eustoma</i>	<i>Lupinus</i>	<i>Ruscus</i>
<i>Anethum</i>	<i>Chenopodium</i>	<i>Fatsyhedera</i>	<i>Lycoris</i>	<i>Salix</i>
<i>Anigozanthus</i>	<i>Chimonanthus</i>	<i>Fibigia</i>	<i>Lysimachia</i>	<i>Salvia</i>
<i>Aquilegia</i>	<i>Chionanthus</i>	<i>Filipendula</i>	<i>Magnolia</i>	<i>Sarcococca</i>
<i>Arctotis</i>	<i>Chrysanthemum</i>	<i>Forsythia</i>	<i>Malus</i>	<i>Scabiosa</i>
<i>Argyranthemum</i>	<i>Cirsium</i>	<i>Gaillardia</i>	<i>Matthiola</i>	<i>Sedum</i>
<i>Armeria</i>	<i>Clarkia</i>	<i>Gaultheria</i>	<i>Mentha</i>	<i>Skimmia</i>
<i>Aronia</i>	<i>Clethra</i>	<i>Gaura</i>	<i>Michelia</i>	<i>Solidago</i>
<i>Arum</i>	<i>Consolida</i>	<i>Gentiana</i>	<i>Moluccella</i>	<i>Spiraea</i>
<i>Artemisia</i>	<i>Convallaria</i>	<i>Gladiolus</i>	<i>Monarda</i>	<i>Stachys</i>
<i>Asclepias</i>	<i>Coreopsis</i>	<i>Gompbrena</i>	<i>Morus</i>	<i>Symphoricarpos</i>
<i>Astilbe</i>	<i>Cornus</i>	<i>Gypsophila</i>	<i>Muscari</i>	<i>Syringa</i>
<i>Astrantia</i>	<i>Corylopsis</i>	<i>Hamamelis</i>	<i>Myrica</i>	<i>Tagetes</i>
<i>Atriplex</i>	<i>Corylus</i>	<i>Helenium</i>	<i>Nandina</i>	<i>Tithonia</i>
<i>Aucuba</i>	<i>Cosmos</i>	<i>Helianthus</i>	<i>Narcissus</i>	<i>Thalictrum</i>
<i>Baptisia</i>	<i>Cotinus</i>	<i>Helichrysum</i>	<i>Nicandra</i>	<i>Trachymene</i>
<i>Belamcanda</i>	<i>Craspedia</i>	<i>Heliopsis</i>	<i>Nigella</i>	<i>Typha</i>
<i>Brassica</i>	<i>Crocsmia</i>	<i>Helipterium</i>	<i>Oreganum</i>	<i>Ulmus</i>
<i>Buddleia</i>	<i>Curcuma</i>	<i>Helleborus</i>	<i>Ornithogalum</i>	<i>Vaccaria</i>
<i>Bupleurum</i>	<i>Cynara</i>	<i>Heuchera</i>	<i>Oxalis</i>	<i>Vallota</i>
<i>Buxus</i>	<i>Cytisus</i>	<i>Hippeastrum</i>	<i>Oxypetalum</i>	<i>Verbascum</i>
<i>Caladium</i>	<i>Dahlia</i>	<i>Hydrangea</i>	<i>Paeonia</i>	<i>Verbena</i>
<i>Calendula</i>	<i>Danae</i>	<i>Hypericum</i>	<i>Papaver</i>	<i>Veronicastrum</i>
<i>Callicarpa</i>	<i>Daphne</i>	<i>Iberis</i>	<i>Penstemon</i>	<i>Viburnum</i>
<i>Callistephus</i>	<i>Delphinium</i>	<i>Ilex</i>	<i>Perovskia</i>	<i>Viola</i>
<i>Calluna</i>	<i>Deutzia</i>	<i>Iris</i>	<i>Pieris</i>	<i>Vitex</i>
<i>Calycanthus</i>	<i>Dianthus</i>	<i>Itea</i>	<i>Phlox</i>	<i>Xeranthemum</i>
<i>Camellia</i>	<i>Dicentra</i>	<i>Ixia</i>	<i>Physalis</i>	<i>Zea</i>
<i>Campanula</i>	<i>Digitalis</i>	<i>Jasione</i>	<i>Physostegia</i>	<i>Zinnia</i>

as field production greatly decreased. Importers became a significant supplier of cut flowers during the 1970s and 1980s. By 1989, imported cuts accounted for 40.1 percent of sales in the United States.

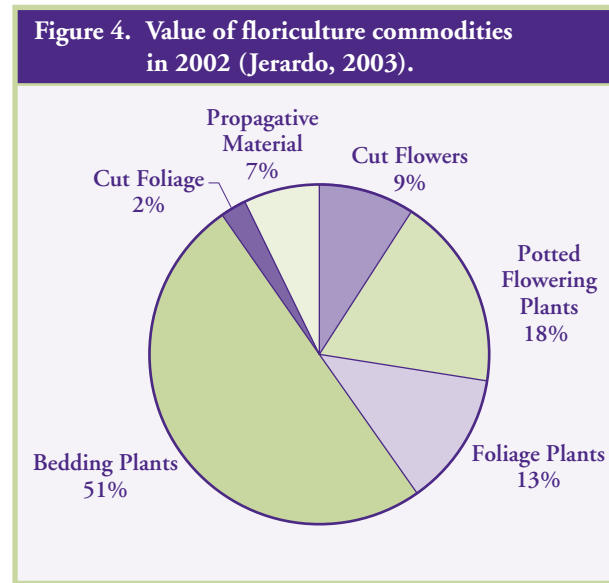
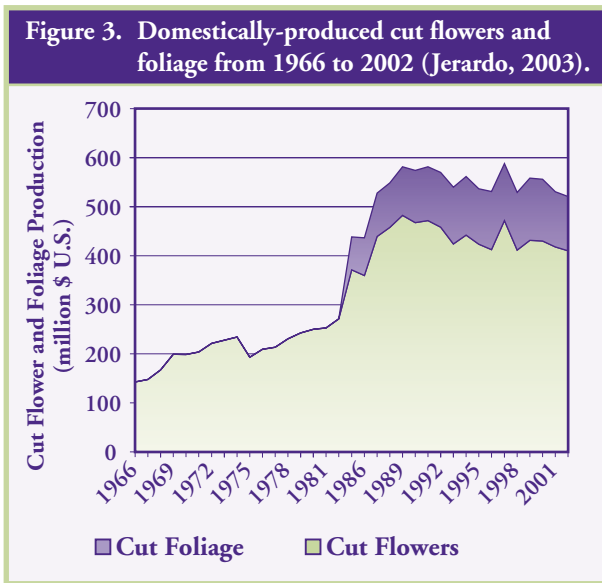
By the 1990s, imported cut flowers became so prevalent that it caused reductions in U.S. production (Figure 1, page 17). By 1999, imported carnations, chrysanthemums, and roses accounted

cut flower organization focusing on cut flower production to form since the establishment of International Cut Flower Growers (formerly Roses, Inc.) in 1937. Although a state organization, the well-known California Cut Flower Commission also supports cut flower growers.

**Current Status**

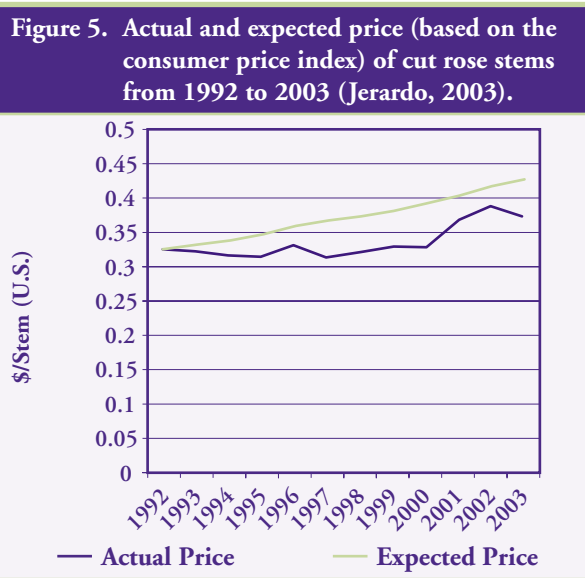
Unfortunately, total cut flower consumption appears to be static or

to \$8 per person. Reasons for the decline in cut flower sales in the United States are certainly numerous, but one major cause may be variable post-harvest quality. Consumers become disenchanted with cut flowers if they last only a couple of days. Another problem has been the lack of a coherent marketing campaign. Such campaigns have been extensively used by a variety of other agricultural commodities such



for 81.6 percent, 90.8 percent, and 69.8 percent of U.S. sales, respectively. Domestic rose production, for example, increased annually through the early 1990s, but has decreased every year since (Figure 2, page 17). Total cut rose sales, however, continued to increase until 2000, with most of the increase in sales being absorbed by imported cut flowers. The primary exporter to the United States is Columbia, accounting for 58.3 percent of sales in 2000. Second-ranked Ecuador and third-ranked Netherlands accounted for 15.0 percent and 11.9 percent of sales, respectively. However, more than 30 other countries exported enough flowers to the United States to be tracked by the United States Department of Agriculture.

In 1991, the Association of Specialty Cut Flower Growers (ASCFG) was formed. ASCFG was the first national



only slowly increasing (Figure 3). In 2002, cut flowers were ranked behind bedding plants, potted flowering plants, and foliage plants based on U.S. dollars (Figure 4). In addition, per capita cut flower sales peaked in 1996-1999 at \$10 per person, and have since declined

as dairy and beef. In addition, other potential gift items, such as wine, candy, balloons, etc. have proliferated, competing with cut flowers for consumers' interest. One result of market share loss has been price erosion. Prices of cut flowers, such as roses, have dropped since 1992, when adjusted for inflation (Figure 5).

Domestically produced cut flowers and greens were valued at \$521 million in 2002 (Table 2, page 20). The top flower-producing state is California (\$279 million), producing 67 percent of domestically produced cut flowers (Table 3, page 20). The second and third highest producing states are Florida and Washington, representing \$25 million and \$18 million respectively. Cut foliage production was valued at \$111 million, with Florida (\$100 million),

*Continued on page 20*

## Status of the Specialty Cut Flower Industry and New Crop Development

continued from page 19

**Table 2. Value of domestically-produced cut flowers and foliage in 2002 (Jerardo, 2003).**

Species	Production (\$ U.S. million)
<i>Alstroemeria</i>	5,101
<i>Antirrhinum</i>	16,615
<i>Dendranthema</i>	18,497
<i>Dianthus</i>	3,243
<i>Delphinium/Consolida</i>	9,501
<i>Eustoma</i>	6,394
<i>Gerbera</i>	22,783
<i>Gladiolus</i>	26,708
<i>Iris</i>	16,226
<i>Lilium</i>	57,712
Orchids	10,506
<i>Rosa</i>	56,183
<i>Rumohra</i>	51,823
<i>Tulipa</i>	28,317
Other cut flower species	132,229
Other cut foliage species	59,121
<b>Total</b>	<b>520,959</b>

California (\$13 million), and Oregon (\$6 million) being the top-ranked states. Specialty cut flowers have become the most important part of the U.S. cut flower industry. The combined production of carnations, chrysanthemums, and roses was \$78 million in 2002, representing only 15 percent of total cut flower and foliage production. In contrast, specialty cut production totaled \$443 million. Cut lilies, once a relatively minor greenhouse cut flower, have replaced roses as the most important domestically produced cut flower. Leatherleaf fern, gerbera, gladiolus, and tulips are the remainder of the top five specialty cuts. The category of other cut flowers steadily increased from \$162 million in 1993, to \$305 million in 2002.

### Production of Specialty Cuts

Specialty cuts are produced year-round in structures ranging from shade houses and open-sided, plastic-covered “hoop” houses to large, fully automated glass greenhouses. Specialty cuts are marketed through a variety of channels, some of which are summer-only and others are year-round. A large portion of fresh and dried cuts in North America are grown outdoors. The field production season starts with woody

and woody plants. By fall, production from annuals is decreasing, a few fall perennials are flowering, and woody plants with berries or other decorative fruits can be harvested. Woody plants with evergreen foliage or leafless decorative stems are harvested in the winter.

### Marketing Channels

Due to the highly perishable nature of their product, fresh cut flower growers must develop an intensive marketing strategy. Local, niche markets are often the best choice for small growers – selling to local retail florists, specialty supermarkets, or other retailers. Fifty years ago, many florists grew their own product, so there was a greater variety of flowers. This is no longer the case, and now florists are asking for fresh, hard-to-find, hard-to-ship items.

Although direct marketing to consumers can offer the benefit of higher prices, this strategy requires additional time and expense. The range of possibilities for direct marketing includes farmers’ markets, bucket shops,

trees, shrubs and vines, and bulbs flowering in the early spring. Perennials and biennials begin flowering mid-spring in the South and late spring in the North. Annuals constitute the majority of production during the summer, supplemented with perennials

**Table 3. United States cut flower production by state in 2002 (Jerardo, 2003). Only states with significant cut flower production are listed; the remainder are included in the “other states” category.**

State	Cut Flower Production (\$ million)	Cut Foliage Production (\$ million)
California	278,581	17,052
Colorado	5,015	-
Connecticut	913	-
Florida	24,679	86,345
Hawaii	17,648	490
Illinois	879	-
Massachusetts	4,713	-
Michigan	8,298	-
Minnesota	5,538	-
New Jersey	8,155	-
New York	5,676	-
North Carolina	3,042	-
Oregon	10,127	3,730
Pennsylvania	3,773	-
Texas	-	2,669
Washington	17,619	-
Wisconsin	2,000	-
Other states	13,359	658
<b>Total</b>	<b>410,015</b>	<b>110,944</b>

pick-your-own, and subscription selling. Of these, the farmers' market is probably the most common marketing channel.

Wholesale markets require larger volumes of flowers, and growers receive lower prices per stem. The greatest benefit of wholesaling is that a grower has an established market for the product and little time is spent finding individual customers. Few small to medium-sized growers sell exclusively to wholesalers, however, because of the low prices received.

Growers often develop a mixture of marketing avenues. For instance, a grower may decide to sell fresh cut flowers to retail or wholesale florists and at the farmers' market. This way, growers can sell long stems to florists and shorter stems to buyers at the farmers' market. Selling at the farmers' market would also increase short-term cash flow, since wholesalers usually pay their accounts only once a month.

Growers may choose to dry or preserve their crop when prices for fresh cuts drop. Drying flowers requires extra labor and storage space. However, dried flowers are not as perishable as fresh, and they may be a good choice for growers located far from the marketplace.

Cut flowers are marketed to the final consumer through flower arrangements, premade mixed bouquets, or single species or 'Euro' bunches. The majority of flowers sold by retail florists are as flower arrangements. Sales through farmers' markets, farm stands, and mass markets are largely as mixed bouquets and single species bunches. Of course, many firms market cuts by all means possible.

### New Cut Flower Species

Novel cut flowers are increasingly important to maintain profitable cut flower production in the United States, because of international competition with traditional high-volume cut

flowers and the need to provide customers with new products. Novel cut flower species arise from the introduction of native species, such as *Eupatorium* and *Rudbeckia triloba*, into cultivation and the development of new cultivars of species already in cultivation, such as holly, snapdragon, and sweet William. A number of novel cut flower species have recently become important including cut campanula 'Champion,' poinsettia 'Renaissance Red,' lupine, and poppy. Successful new introductions for field production are numerous. Many new sunflower cultivars exhibiting a broad range of colors and flower forms have been released in the last few years. Other notable new field-grown cuts include dianthus 'Amazon,' rudbeckia 'Prairie Sun,' and zinnia 'Benary Giant Lime.'

### Conclusions

In summary, carnations and chrysanthemums have become specialty cuts in the United States. Rose production is still substantial, but declining. Consequently, specialty cuts have become the heart of the industry. Unfortunately, the total cut flower market is static or increasing slowly and per capita sales are declining. The need for novel specialty cuts for both greenhouse and field is increasingly important to maintain consumer interest and replace production lost to imported cut flowers. The number of species and cultivars available for cut flower production is rapidly increasing, and mixed bouquets have become especially important. Consumers have an unprecedented array of species and cultivars from which to choose, and prices are low.

### Acknowledgments


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is provided by the American Floral Endowment, the Association of Specialty Cut Flower Growers, the Fred C. Gloeckner Foundation, and the International Cut Flower Growers. In addition, numerous companies have donated seed, plugs, and perennial plants; and Bear Creek Farm and Sarah and Michael's Farm have provided marketing support.

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# 2004 OFA Short Course – Celebrating 75 Years of Planting the Seeds of Knowledge



The 2004 educational program provided a variety of seminars, hands-on workshops, tours, and interactive sessions for all segments of the industry. Many rooms of the convention center were buzzing with speaker suggestions, lively debates, and idea exchanges among peers.

For greenhouse growers, session topics included vegetative and seeded annuals, perennials, poinsettias, media, nutrition, irrigation, lighting, chemical growth regulation, and container production. Sessions were presented in three “tracks” – greenhouse production basics, advanced topics, and disease and pest management. The grower study tour on “Extension Reloaded: A Diagnostic Tour” was a hit, visiting several locations in the Columbus and Cincinnati areas.

## OFA Short Course Was the Place to Be in July

For 75 years, the OFA Short Course has been THE place for floriculture industry professionals to meet, network, learn, and conduct business with their peers from around the world. Each year at this event, attendees can get a worldwide perspective on what’s happening in the industry. In 2004, OFA Short Course attendees again came to Columbus, Ohio in July from near and far. In fact, the attendance of more than 9,800 was an increase from 2003, as professionals from across the United States and 25+ other countries were in town to attend more than 120 educational sessions and visit 1,330+ trade show booths.

At the trade show, nearly 600 exhibitors showcased their products, plant material, and equipment. Unique displays, new ideas, samples, and demonstrations kept the trade show floor bustling with activity.

Garden center operators toured several central Ohio locations for ideas to “borrow” to enhance their own businesses. A one-day workshop was presented on the future of garden

While we’re pleased with the numbers, OFA is continually focused on improving the quality of the Short Course – and we’re hearing great things from attendees and exhibitors this year! Some returning exhibitors have commented that this was their best year yet; and the quality of “take-home” information from the seminars was outstanding, according to many attendees.



retailing. Other sessions focused on a variety of needs – marketing, customer relations, controlling insects, making a profit on woody ornamentals, store layout, merchandising, and keeping your garden center updated.

An interior plantscape technician workshop focused on media, insect/disease diagnostics, customer service, aglaonema varieties, and color programs. An interior plantscape management workshop focused on secrets for interiorscapers, asking the right questions of growers and wholesalers, how to be the best boss, safety in the workplace, and how to be an effective trainer. Holiday preparation was also a hot topic for all interiorscapers.

Retail florist hands-on workshops focused on color, creating high-style looks at a low cost, and gift baskets. General sessions addressed tips and tricks of the trade, pricing issues, and a history of floriculture.

Marketing and management topics included working with employees more effectively, increasing profits, marketing to and maintaining customers, dealing with the generation gap, point-of-sale systems, customer relations, leadership skills, and time management.

Archie Griffin, an alumnus of The Ohio State University (OSU) and one of college football's greatest players, was



*Kathy Benken, OFA president, and Archie Griffin, 2004 OFA Short Course keynote speaker.*

the OFA Short Course keynote speaker. Griffin presented his beliefs about “The 3 D’s of Success” – desire, dedication, and determination – and how they’ve helped him succeed personally and professionally as a football player, OSU’s associate director of athletics, and now as president of the OSU Alumni Association.

Attendees also had an opportunity during the Short Course to visit the New Products and New Varieties displays, attend the Short Course reception, stop by the OFA Showcase and view a display of OFA historical items, support

several FIRST fund-raising activities, and purchase books, apparel, and conference CDs at the OFA MarketPlace featuring the Ball Bookshelf.

## “Take-Home” Education Available

A majority of the sessions at the OFA Short Course were audio recorded. A conference CD-ROM package of these presentations has been developed. It includes the live recordings and any available PowerPoint slides and/or handouts from the presenters. The CD-ROM will play in your computer or in a MP3/CD player. The complete CD-ROM package is \$229 + shipping for OFA members.

All recorded sessions are also available individually on audio CD. OFA members pay \$12 + shipping per one 90-minute session on audio CD. For an order form, visit [www.ofa.org](http://www.ofa.org) or call 614-487-1117.

**Mark your calendar!**  
**OFA Short Course**  
**July 9-13, 2005**



# ofa™ Thank You

OFA thanks the following firms for providing products, services, and other contributions for the 2004 OFA Short Course workshops, seminars, tours, receptions, and decorations.

## Diamond

Ball Publishing Co  
*Florists' Review*  
 The Flower Fields  
 Branch-Smith  
 Publishing/*GMPro*  
 Green Industry Yellow Pages  
*Greenhouse Grower*  
*GPN/LGR*  
 Pride Garden Products

## Ruby

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 DeMonye's Greenhouses  
 Cuthbert Greenhouse Inc  
 Experience Columbus  
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 Priva Computers Inc  
 Summit Plastic Co  
 Syngenta Professional Products  
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 Meeting Motion  
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 Ruibal's Topiary Systems  
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The 2004 OFA Short Course was well attended by floriculture professionals from around the world. We hope all attendees enjoyed and benefited from this year's efforts.

## Bronze

Adopt A Plant  
 AJ Rahn Greenhouses  
 Armellini Express Lines  
 Austram Inc  
 Ball FloraPlant  
 Bard Nurseries Inc  
 Bates Sons & Daughters Inc  
 Belden Plastics  
 Berns Garden Center  
 HJ Benken Florist & Greenhouse  
 Bioworks  
 Blooms Direct  
 Bodger Botanicals  
 Bouldin & Lawson  
 Brody Glass  
 Bruce Jensen Nurseries Florida LLP  
 California Florida Plant Co LP  
 Calla Co  
 Campania International  
 Thomas Catanese & Co  
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 Chris Industries  
 Continental Farms

Continental Floral Greens  
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 Day Lily Nursery  
 Delhi Flower & Garden Centers  
 Deroose Plants Inc  
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 Green Circle Growers  
 Hahn's Greenhouse  
 Hiawatha Corp  
 Hills Floral Supply  
 IGI Marketing  
 Initial Tropical Plants  
 Jacobson Plants  
 Kay Berry  
 King's Foliage  
 Krismer's Northgate Greenhouses  
 Lion/Offray Ribbon  
 Mattfeld Greenhouse & Florist

Maximum Nursery  
 McCabe's Greenhouse & Floral  
 Meadow View Growers  
 Moeller Greenhouse  
 Natorp's Inc  
 Nouveau Packaging LLC  
 Novelty Manufacturing  
 Ostendorf Greenhouses  
 Paul Ecke Ranch  
 Plantland Garden Centers  
 Plantpeddler/Dummen USA  
 Robben Florist & Greenhouse Inc  
 Sakata Seed America  
 The Scotts Co  
 Seven Oaks Plant Shop  
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## Continue the tradition in 2005...

We are now planning for the 2005 OFA Short Course. Your past support is much appreciated. Your future support is vital to continuing the inspirational, educational, networking opportunities of the OFA Short Course. Support the 2005 OFA Short Course, where together we continue to grow. Thank you!



# 2004 OFA Short Course Best Booth, New Product Awards

— presented by Branch-Smith Publishing/GMPro

OFA celebrated its 75<sup>th</sup> Short Course in Columbus in July with more than 9,800 attendees. This is the fifth year that Branch-Smith Publishing has presented a Best Booth Award.

This year's winner was Terra Nova Nurseries in Tigard, Oregon, which featured gold-framed paintings of its perennial plant introductions. Terra Nova also won a Best Booth Award in 2002.

New this year was the presentation of a Best New Product Award. Thirty-two companies participated in the New Products Display, sponsored by Branch-Smith Publishing. The Best New Product Award went to Smithers-Oasis North America for its GardenShapes line of moss-covered foam topiaries.

Both winners were chosen by OFA Short Course attendees. Eligible voters were entered into a drawing for \$100. The winner was Ivan Banks of Banks Farm in Petroleum, West Virginia.

Branch-Smith Publishing also sponsored a drawing to cover the cost of a trade show booth at the 2005 OFA Short Course. Dramm Corp. in Manitowoc, Wisconsin won the booth fee.



*Charles Walton, president of Smithers-Oasis North America in Kent, Ohio, shows off Branch-Smith Publishing's first Best New Products Award for his company's GardenShapes topiaries. It was chosen from 32 products in the New Products Display.*



*Sales representative Jame Vandecoevering (left) and president and CEO Dan Heims of Terra Nova Nurseries in Tigard, Oregon, took home the Best Booth Award. The company also won the award in 2002.*



*Kurt Becker (left) and Kurt Dramm of Dramm Corp. in Manitowoc, Wisconsin, accepted the prize from a drawing to cover the cost of a trade show booth at the 2005 Short Course.*

## OFA Election Results Announced

OFA – an Association of Floriculture Professionals announced at its July annual meeting the re-election of the OFA president and vice president and the election of five new members to the board of directors.

Re-elected as **President** is Kathleen Benken, OCF, of H.J. Benken Inc., Cincinnati, Ohio. **Vice President** is Jim Broderick of Plantland Garden Centers, Columbus, Ohio. The five new directors are: **Ohio Retail Florist – John Corso**, Corso's Flower and Garden Center, Sandusky, Ohio; **Grower At-Large – Tina Hood**, Hood's Gardens Inc., Noblesville, Indiana; **Grower At-Large – Lisa Wenke Ambrosio**, Wenke Greenhouses, Kalamazoo, Michigan; **Ohio Grower – Doug Thorsen**, Thorsen's Greenhouse, Delaware, Ohio; and **Garden Center At-Large – Jim Wallitsch**, Wallitsch Nursery and Garden Center, Louisville, Kentucky.

## Retiring OFA Board Members Comment on their Service

OFA greatly appreciates the tremendous amount of time, thought, and input that our Board of Directors members give to the Association each year. Board members serve a three-year term, and five members roll off the board each year as new members begin terms. These are a few comments from two retiring board members:

"My three years on the OFA Board was extremely rewarding and exciting. What I remember the most is the dedication of the OFA staff, executive committee, and Board of Directors to make OFA successful. It was an honor to serve on the Board and be surrounded by such great people in our industry, many whom I will be friends with for life. Thanks!" – **Jerry Dill**, Dill's Greenhouse, Groveport, Ohio

"Looking back on my past three years as a board member some things really hit me. My first impression was that the dedication by so many and the opportunity to work with those that care so much was very enjoyable and rewarding. I also realized how little I knew about the organization. From a perspective that I was not very involved previously, and being a retailer only, I guess I looked at things a little differently. I see changes that we made that were necessary and see more coming. I see great opportunities and so much more that OFA can do ... We are not what we were. Remember if you always do what you always have, you will always be what you have always been. ... OFA is more than Ohio, it is more than a trade show, and can be a lot more if people don't hold it back. WE have a great thing going, and I hope it continues to progress. I look forward to continuing to serve on committees and further involvement. Thanks, and great working with all of you." – **John Herb**, Jack Herb Florist, Cincinnati, Ohio

## Retail Sales Pro Workshop to be Offered

*Ian Baldwin, presenter*

**October 12 – HJ Benken Inc,  
Cincinnati, Ohio**

**October 14 – Wenke Greenhouses,  
Kalamazoo, Michigan**

With today's competition for the consumer's money and loyalty, the role and importance of the retail salesperson is more crucial than ever. In this workshop, geared toward front-line sales staff, Ian will show you how to make more money.

From this intense, hands-on workshop, you will learn how to:

- Use industry trends to understand customers
- Assess customer personality and buying motives
- Sell in the customer's interests
- Translate your knowledge so the customer understands
- Relate your products to customer needs and lifestyles
- Create positive "moments of truth"
- Help customers buy for success
- Solve problems and build customer loyalty

Sales training is one of the best investments you can make. The main goal of the "Retail Sales Pro" program is to create a more dynamic retail sales force in the retail "trenches" – where the consumer is won or lost. The Retail Sales Pro Workshop will train attendees how to convert consumers' home and garden dreams into a successful reality. Ian Baldwin operates Nursery Business Consultants from Elk Grove, California and assists independent retailers in a wide range of design, merchandising, marketing, and training aspects of profitability. For more information, contact OFA.

## "Technology, Automation, & Greenhouse Efficiency – For the Rest of Us" Workshop

**October 27 (9 a.m.-3:30 p.m.)**

**– Stillwater, Oklahoma, in cooperation with the Oklahoma Greenhouse Growers Association**

**November 3 (2-6 p.m.)**

**– Lansing, Michigan, in cooperation with the Michigan Greenhouse Growers Expo**

Lloyd Traven and Peter Konjoian have developed this program to address the challenges small and medium-sized growers face in incorporating technology and automation into their ranges to improve efficiency and profitability. The seminar is a product of their combined decades of experience running their respective operations. Peter's operation is a 45,000-square-foot retail business in Massachusetts. Lloyd just added 30,000 square feet of state-of-the-art facilities to his existing 20,000-square-foot wholesale business in Pennsylvania. Both interact extensively with growers from across North America and have integrated these experiences into the presentation.

Seminar highlights: Economics of Greenhouse Production, Technology for Today's Greenhouse, Benefits: Payback Calculations, Benefits: Operational and Production Practices

Personal examples of technologies and automation systems each has incorporated into his business will serve as case studies for the seminar, blended in with attendee participation. Basic principles of economics that apply to the greenhouse industry will be used as the foundation for the program. The all-important concept of investment payback will be discussed in detail with examples and real life cases. For more information, contact OFA.

## OFA Alex Laurie Winners Announced

A. Jeremy Bishko, graduate of the University of New Hampshire, Paul R. Fisher, University of New Hampshire, and William R. Argo, Blackmore Co., were named recipients of the OFA Alex Laurie Award in July during the OFA Short Course.

This year's award was presented for the paper "The pH-Response of a Peat-Based Medium to Application of Acid-Reaction Chemicals," as published in *HortScience*, a publication of the American Society for Horticultural Science.

## Order OFA Tips... Book to Update Your Library

The 2004 edition of *Tips on Managing Floriculture Crop Problems: Pests, Diseases, and Growth Control* is now available through O.F.A. Services. Contact OFA for purchasing information. Visit the OFA Web site ([www.ofa.org](http://www.ofa.org)) for complete descriptions of all *OFA Tips...* publications.

Remember to circulate the *OFA Bulletin* among your staff members. This information is designed to be valuable for all areas of your business.

[www.ofa.org](http://www.ofa.org)



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Columbus, Ohio 43215-1033 USA

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## OFA Event Calendar

August 12-14	<b>FloralWorld™</b> at SNA 2004... – Atlanta, GA
September 20-23	<b>International Bedding Plant Production Conference</b> (Ball Publishing/OFA) – Chicago, IL
October 12	<b>Retail Sales Pro Workshop</b> (with Ian Baldwin) – HJ Benken Inc, Cincinnati, OH
October 14	<b>Retail Sales Pro Workshop</b> (with Ian Baldwin) – Wenke Greenhouses, Kalamazoo, MI
October 22-25	<b>OFA Board &amp; Committee Meetings</b> – Cincinnati, OH
October 27	<b>Technology, Automation, &amp; Greenhouse Efficiency For the Rest of Us</b> (OFA/Oklahoma Greenhouse Growers Association) – Stillwater, OK
November 3	<b>Technology, Automation, &amp; Greenhouse Efficiency For the Rest of Us</b> (OFA/Michigan Greenhouse Growers Expo) – Lansing, MI

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