



CORF News

Floriculture Education from the
Kee Kitayama Research Foundation

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Greenhouse Cost Accounting: A Computer Program for Making Management Decisions

By Dr. Robin Brumfield, Specialist in Farm Management, Rutgers, New Jersey

A new computer program 'Greenhouse Cost Accounting' could be helpful to greenhouse and nursery managers. Managers can use the software to analyze various strategies to improve the overall profitability of their businesses. This can be done by entering either hypothetical crops into the program or hypothetical changes in the current production system and comparing the results to that system. This program also

could be used for student instruction in floricultural production and management or in workshops and other programs that teach greenhouse management. The program has the following goals:

- 1) Allow greenhouse managers to allocate as many variable costs as possible from the income statement to specific crops. The program will then total the overhead costs and

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Contract Growing: Is It For You?

By Dr. Robin Brumfield, Specialist in Farm Management, Rutgers, The State University of New Jersey

The green industry is the fastest growing sector of U.S. agriculture and accounts for over 11% of cash receipts for farm crops. The industry grew at a phenomenal rate of nearly 10% per year from 1986 to 1990. While the growth is still strong, it has slowed to a more modest 3% to 4% per year, reflecting a mature market. The growth of mass-market sales has encouraged specialization and price competition. Large producers are expanding by vertical integration (expanding their economic base through the addition of value-added or pre-production processes) and mergers. Some of these large producers are offering contracts to other producers to supply product.

Advantages of Contracts for Producers

There are several advantages of contracts for producers.

1. Contracts are an easy way to enter the industry,
2. A contract eliminates some market risk and uncertainty and makes it easier to get credit since the producer has a "guaranteed sale,"
3. With sales already assured, producers can focus on just

growing, giving them some economic security and emotional stability, 4. Having a contract limits price risk in a down market. Without having to worry that the buyer is searching for other suppliers, the producer can focus on being a low-cost producer, 5. A contract also may provide a reliable cash flow, 6. It may enhance long-range planning and makes it possible to allocate space in advance, 7. Finally, the length of the contract may fit depreciation schedules on facilities and insure a less variable return on investment.

Disadvantages of Contracts for Producers

There are some disadvantages that a producer should consider before entering into a contract.

A contract gives the producer less market flexibility. The producer must deliver at the contract price at time of delivery.

There may be penalties for non-delivery and not meeting quality

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To Diversify or Not Diversify... Growers Provide Insights

By Julie P. Newman, Steven A. Tjosvold, Ann I. King and Karen L. Robb, UCCE

The decision of whether or not to diversify floral crops appears to be a very personal decision for each company interviewed. Producing one or a very few crops allows growers to excel in production of those crops, creating a niche of excellence. On the other hand, diversification 'hedges the bets,' lessening the impact if any one crop becomes overproduced, loses popularity or market share. We asked several growers how they came to the decision of whether or not to diversify and whether this decision has been

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Diversification

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successful.

Dan Vordale, Sales Manager of *Ocean View Flowers*, in Lompoc says that Ocean View started out specializing in field-grown stock. They made the decision a number of years ago "to keep our focus narrow and not to try to grow something for everyone." This decision has been very successful for them. Today, the primary crops produced by Ocean View are stock, larkspur and delphinium. Since there is no environmental control in the field as in greenhouse production, Ocean View Flowers moves their growing fields around southern California to frost-free locations. In the winter, the growing grounds are shifted from Lompoc to Oxnard and the Coachella Valley. In the late spring, another shift is made to the high desert before moving back to Lompoc. "By moving our production sites around, we can offer our customers high quality product all year," Dan explains. They are well known in the industry for these high

quality specialty flowers. Ocean View Flowers does grow numerous other field flower crops to complement their orders. "However, this is mainly a service we provide to our customers, and not the focus of our production."

Bill Young owner of *Aspen Nursery* in Watsonville has also resisted diversification. Bill still believes that he should concentrate on his "bread and butter" crop, fresh greenhouse cut roses and currently only dabbles in growing a few specialty cut flowers and potted floral crops. He believes in his rose crop. He consistently produces excellent quality and provides his customers with new varieties. Bill says, "In that way, I have a good customer base and excellent loyalty." When asked whether he has made the right decision to continue with roses, Bill emphatically states, "It's easy to be an optimist. The worse is over." He continues, "First our operation was severely strained with the energy

crises in the winter of 2000 and 2001. Then there was the beginning of the recession. Then there was September 11. Then just when we thought it was over, in December, we got pounded with a hail storm and lost 600 panes of (greenhouse) glass." Thank goodness for 2002.

Other growers believe that diversification has been necessary. *Oku, Inc.*, in Pescadero, was historically a greenhouse-grown cut rose producer. Co-owner **Steve Oku** saw many years ago that crop diversification was essential to their business. As Steve notes, "It was a no-brainer to get out of roses and go into other crops." They were very successful taking on cut lily production, along with other crops, but now the oversupply of lilies has flooded the market and cut into their successful niche.

See Diversification - Page 3

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Diversification

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Steve notes that it is important to stay one step ahead of everyone else, especially with the marginal financial returns currently seen in the greenhouse cut flower industry. He is willing to grow any new flower that will produce and sell well. But with new minor crops, he says that it is easy to flood the market and lose the profit potential if just a few growers get into the same crop. He notes that there is a learning curve in taking on any new crop, and that it is important to determine the horticultural potential and the market economics before investing too much.

In summary, Steve recommends diversifying into new crops as needed, but spending adequate time assessing the economics before doing it. Given what he sees currently as the fluctuating state of the cut flower business, Steve's advice is, "Good luck."

The *Paul Ecke Ranch* has also experienced success with diversification of their propagative plants through their Flower Fields line. **Jan Hall**, Flower Fields Clean Stock Manager, stated that there were multiple reasons for diversification to new crops, including a desire to keep their work force fully employed throughout the year. The poinsettia market is a relatively mature market with limited room for growth and expansion compared to the market for Flower Field Products. In fact, they are now selling a greater volume of Flower Field Products than poinsettia cuttings.

Jan notes that most growers are using some level of diversification. "Consumers are always looking for new products, so growers always need to be looking for either new crops or new varieties of existing crops. New products catch the eyes of consumers, excite them and keep them purchasing our products."

Contract Growing

Continued from page 1

standards.

There is often a long-term commitment to consider, possibly 3 years with one buyer, which eliminates competition for the product. A contract restricts or eliminates the producer's ability to market plants to another buyer, thus limiting upside potential in strong markets, and there is a risk of default by that single customer.

There is also a risk that changes in input prices such as energy costs may not be accounted for in the contract.

The contract may use a different pricing schedule than for plants purchased on open market. The contract price will probably be lower than the average market price.

Finally, if there is a long-term contract, what happens at the end of the contract? Will you have to look for a new buyer?

Advantages of Contracts for Buyers

The buyer, too, has certain advantages with a contract, the most important being a consistent supply of high quality products. A contract secures long-term supply of product and may reduce procurement costs. The buyer has greater control over how plants are produced. The buyer may be able to secure high quality plants that are unavailable to the competition. The contract may be strategic tool to use against competition. A contract offers vertical coordination from beginning to end, and the long-term cost of plants is the same or lower than open market prices. In other words, the buyer has taken control of more of the production process.

Disadvantages of Contracts for Buyers

Even a contract may not insure a consistent supply of plants to the buyer. It depends on the percentage of plants under contract. There is still a potential for quality problems. Because producers are obligated to the terms of the contract, it is harder for a buyer with a contract to adjust to changes in market conditions resulting from large price swings and structural changes. Because of the contract, a buyer may pay higher than market prices for plants in down markets than someone who is buying on the open market.

Considerations before Making a Contract

Before entering into a contract arrangement, a producer should seek a buyer who

has a history of procuring plants similar to the type and quality being produced. The producer should consider the reputation and financial stability of the buyer.

The producer should ask questions. How long the buyer has offered contracts? Do other producers in the area have contracts with this buyer? What kinds of contract disputes have arisen, if any?

Characteristics of a Good Contract

You should retain an attorney before making contract negotiations. A good contract is clear and concise. It states the rights and responsibilities of both the producer and buyer. Terms should include quantity, quality standards, location for delivery, date of delivery, and price. The contract should include provisions for settling disputes and a possible escape clause. For example, consider whether the buyer has a right to inspect the plants and make possible changes and adjustments in buyer's buying program. Can the buyer cancel the contract? Are there provisions for the producer to get out of the contract?

The contract also should spell out the duration of the contract; the method and timing of payment; the record keeping system to be used; sources of seeds, seedlings, and plants; the technical assistance provided by buyer (will the buyer send a representative to help you control insects and diseases or solve other production problems?) and the specifications, if any, for production facilities.

Other considerations for producers are the amount of buyer competition in the area, whether future expansion will be included in the contract, your lender's attitude toward contracts, and the long-term price outlook for your product.

In summary, check with your attorney regarding contract growing in your state. Carefully read it and make sure it includes procedures for dealing with disputes. Keep lines of communication open between you, your attorney, and the buyer.

Acknowledgment

The risk management education initiative is a joint project sponsored by Rutgers Cooperative Extension and the Risk Management Agency (RMA) of the United States Department of Agriculture (USDA).

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Greenhouse Accounting

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- variable costs that cannot be allocated directly to specific crops and will allocate them to each crop on a per square-foot-week basis.
- 2) Allow managers to determine the profit or loss of each crop.
 - 3) Provide a tool for use in financial and production management.
 - 4) Provide managers with information to reduce costs.
 - 5) Provide a planning tool to identify and eliminate unprofitable crops and increase profitable ones.
 - 6) Provide necessary cost data for pricing plants.

The Greenhouse Cost Accounting program begins by collecting information typically contained in income statements that are readily available to managers. The user then enters information on direct costs of each crop. From this input, the program allocates as many costs as possible to individual crops. The program assigns the remaining unallocated costs from the income statement to each crop on a per square-foot-week basis. The program then calculates information on costs and returns per crop, per unit (pot or flat), and per square foot for each crop, as well as an income statement showing total costs, allocated costs, and unallocated costs.

The Greenhouse Cost Accounting program assumes that the grower has a grasp of financial management and maintains good records.

For a copy of the software, send \$50 check, payable to Rutgers-The State University of New Jersey to Dr. Robin G. Brumfield, Specialist in Farm Management, 55 Dudley Road, Rutgers University, New Brunswick, NJ 08901-8520, e-mail: Brumfield@aesop.rutgers.edu, phone 908/932-9171 ext. 253.

IPM Update - Methyl Bromide Alternatives

Since about 1994, there has been a strong push to find viable alternatives, including replacements, for methyl bromide. While most growers would probably prefer a replacement, the likelihood of finding and registering one before the 2005 (for the U.S. and other developed nations) phase out deadline is very small. Therefore, growers should be looking for alternatives.

We know that methyl bromide is a highly effective pre-plant soil fumigant used to control insects, nematodes, weeds, and pathogens as well as a postharvest fumigant and control for soil borne quarantined pests. Some of the advantages of methyl bromide are that virtually any crop can be planted into treated soil without danger of being injured and that it controls a wider spectrum of pests than any given alternative fungicide, nematicide, insecticide, or herbicide.

One of the problems with finding alternatives to methyl bromide is that they are often pest specific. For example, a material may control plant pathogens but not weeds. A nematode resistant rootstock will usually have no effect on other pests that may injure the crop. The best alternatives are currently those that incorporate combinations of chemical and non-chemical methods of pest control, that is, use of integrated pest management within the cropping system. Non-chemical alternatives that have the potential to be adopted by growers include crop rotation, soil

solarization, use of organic amendments, steam, adjusting cultural practices, and plant breeding. Each one of these alternatives has its advantages and disadvantages in any given situation.

Currently, the USDA is funding a series of projects in California to demonstrate alternatives to methyl bromide for field grown flowers. Dr. Clyde Elmore, Weed Specialist from UC Davis is heading the project with cooperation from Farm Advisors Steve Tjosvold, Karen Robb, UC Staff Research Associate John Roncoroni, and myself. The current chemical methods being tested include 1,3-dichloropropene (Telone), dazomet (Basimid), chloropicrin, iodomethane, propargyl bromide, metam sodium (Vapam), and Inline, among others alone or in combination. Some of the alternative fumigants can be applied in drip lines reducing the need for tarping the entire field, although the beds generally need to be tarped.

The USDA is funding a number of other projects to help find and promote methyl bromide alternatives. Space precludes me from listing specific results but the project summaries can be found on the internet at <http://www.nps.ars.usda.gov/programs/programs.htm?projectlist=true&nnumber=308>.

*Cheryl Wilen, Area IPM Advisor
Ornamentals, UC Statewide IPM Project*

Upcoming 2002 CORF Programs

The ABCs of Horticulture: A Bilingual Workshop, Watsonville, May 30

Grower School: New Field Flower Crops, Oxnard, June 26

Technology, Research Demonstrations and Grower Tour, San Diego, September 19

IPM Strategies Symposium, Watsonville, October 10

Floriculture & Nursery Marketing: Innovative Opportunities, Watsonville, November 14

Regional Report

San Mateo & San Francisco Counties Sun Protection in the Field and Greenhouse



Because of the time spent outdoors, growers need to take extra precautions against skin cancer. Even in the winter... even in

foggy areas... even if you have dark skin... even if you are not outdoors much... and even in the greenhouse. Do you know ???

The sun's harmful ultraviolet (UV) radiation can penetrate through most clothing? It can go through automobile, tractor, and greenhouse windows? It can damage your eyes, contributing to cataracts, macular degeneration, and eyelid cancers?

Growers cannot avoid the basic rule of avoiding unnecessary sun exposure between 10:00 a.m. and 4:00 p.m., but they can take these simple precautions:

1. Always apply **sunscreen before going outdoors** (even on cloudy days and in winter). Choose a product that is rated SPF 15 (or higher), and which filters out both UVA and UVB radiation. You will need to apply it more than once a day.
2. Wear **protective clothing**, including long pants and shirts, gloves, UV-protective sunglasses (the wrap-around style), and broad-brimmed hats.
3. **Examine your skin**, head to toe, at least once every three months. Use mirrors or have someone help you.
4. **Protect your children** when they are outdoors.

Hats. Baseball caps do not cover the ears or neck, and do not offer as much sun protection as hats with wide brims.

"French Foreign Legion hats" offer the best protection, with back and side flaps that cover the ears and neck. Cowboy-style hats with wide brims (at least 3 inches) also offer more sun protection than a baseball cap. The message is – **trade in your baseball cap for a wide-brimmed hat that shades your face, ears, and neck.**

Greenhouses. Skin-damaging UV light can penetrate through glass greenhouse coverings, and through some plastic and acrylic coverings. Some greenhouse

covering materials are better at blocking UV penetration, and some are marketed as blocking UV radiation. In a future article, I will address the UV-blocking capacities of different greenhouse coverings. If you are unsure, take all of the skin-protecting steps that are recommended for outdoor workers.

There are three common types of skin cancer to be aware of:

Basal cell carcinoma is the most common form of skin cancer. Until recently people most often affected were older people, **particularly those who had worked outdoors.** Chronic exposure to sunlight is the cause of most basal cell carcinomas, which occur mostly on exposed skin areas – the face, ears, neck, scalp, etc.

Squamous cell carcinoma is the second most common skin cancer. These can occur anywhere on the body but are most common in areas exposed to sun.

Melanoma is the most serious form of skin cancer, but if diagnosed early, it is almost 100% curable.

The **most common warning sign of skin cancer is a change on the skin**, especially a new growth or a sore that does not heal. **Skin cancers do not all look the same.**

The Five Warning Signs of Basal Cell Carcinoma: (1) **An open sore** that bleeds, oozes, or crusts and remains open for 3 or more weeks. (2) **A reddish patch** or irritated area. Sometimes it crusts, or itches, or hurts; sometimes there is no discomfort. (3) **A shiny bump** or nodule, that is pearly or translucent and is often pink, red, or white (or other colors, which can be confused with a mole). (4) **A pink growth** with a slightly elevated rolled border, with a crusted indentation in the center. (5) **A scar-like area** which is white, yellow, or waxy, and often has poorly

More effective



Less effective



defined borders.

The ABCDs of Moles & Melanomas.

Most people have brown spots on their skin – freckles, birthmarks, and moles. Most of these are normal, but some may be skin cancers. Be alert to irregularities in shape, edges, color, and size. The ABCDs of melanoma are as follows:

Asymmetry: Most early melanomas are asymmetrical (not round). Common moles are round and symmetrical.

Border: The borders of early melanomas are often uneven and may have scalloped or notched edges. Common moles have smoother, more even borders.

Color: Common moles are usually a single shade of brown. Varied shades of brown, tan, or black are often the first sign of melanoma. As melanomas progress, the colors red, white, and blue may appear.

Diameter: Early melanomas tend to grow larger than common moles – generally to at least the size of a pencil eraser (about 6 mm, or 1/4 inch in diameter).

If you detect any of these warning signs, see a physician right away. Also watch for changes in moles, including changes in size, color, elevation, surrounding skin, surface texture, or sensation (such as itching). Anything suspicious should be checked by a doctor.

See your doctor regularly, and be checked for early skin cancers, especially if you work outdoors. Early detection is always the best, so why not have a trained professional help you?

Denial or ignorance will not protect you from skin cancer. Your best protection is knowledge and the regular everyday use of sun protection factors (protective clothing and sunscreen). Be informed... and be protected. For more information:

- Contact your doctor
- Check the web site of the Skin Cancer Foundation, at www.skincancer.org
- Contact your local office of the American Cancer Society for brochures on skin cancer and sun protection, or check their web site at www.cancer.org

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Regional Report

Santa Cruz & Monterey Counties

Evaluation of Reduced Risk Pesticides on the Control of Spider Mites (*Tetranychus urticae*), 2001



A greenhouse experiment in September 2001 evaluated the effectiveness of 'reduced-risk' and other pesticides for the control of two-spotted spider mites (*Tetranychus urticae*). The summary of the results are reported here.

Spider mites were selected from a commercial rose greenhouse, raised on bean leaves, 15 adult mites were transferred to each experimental bean leaf, eggs were laid and nymphs developed for 2 weeks, and then 5 replications of each experimental leaf was sprayed with each treatment. Evaluations of the treatments were made 3, 7, 14 and 21 days after treatment. Counts were made on adults and nymphs. Manufacturer and rate(s) for 100 gallons spray is given in parentheses below.

Avid (Syngenta, 4 fl. oz.) had very good effectiveness even though the spider mites came from greenhouses that only two years ago contained Avid-resistant mites. Mites in these greenhouses were being controlled by the predator, *Phytoseiulus persimilis*, for over a year. In this greenhouse, it appears that spider mites have reverted back to an Avid-susceptible state. The grower should be able to use Avid effectively during those tough periods when biocontrol doesn't work. The insecticidal surfactants, **MPede** (Mycogen, 1%), **DR A034** (Ecosmart, 1 and 2%) and **LQ-215** (Safe Science, 0.2 and 0.4%) were moderately effective. No surprise here. Sufactants show quick knock down but when looking at control 14 days out they never give the residual control that the heavy hitters provide. **Erase** (IJO Products), containing jojoba oil, had moderate effectiveness at 0.5% to good effectiveness at the 1% rate. This is a good powdery mildew fungicide too. You will need to be careful to watch for phytotoxicity. Maybe rotate to another

chemistry after one application. Use it if you have mites and powdery mildew. The ovicides, **Hexygon** (Gowan, 2 oz.) and **Ovation** (Scotts, 2 fl. oz.), had very good control. Maximum activity was seen after 14 days. Just be patient. **TetraSan** (Valent, 2 and 4 oz.) a mite growth regulator had very good control. There was limited knock down, but activity was faster than the ovicides and good control was observed after 7 days. **Acari** (Sepro, 12 and 16 fl oz.) treatments had good mite control. **Pylon** (Olympic, 2.4 fl oz.) had very good mite control. **Ultiflora** (Gowan, 8 and 16 fl oz.) had very good effectiveness. The active ingredient, milbemectin, is a close chemical relative to avermectin (Avid) so there was concern about the possibility of cross-resistance, but research has not proven that to be the case. **Floramite SC** (UniRoyal Chem., 4 and 8 fl oz), a new formulation, and **Floramite WP** (UniRoyal Chem., 4 oz) had very good control. With the SC formulation, the higher rate had significantly better control in the first 7 days. **Phyton** (Source Technology Biologicals, 13 and 26 fl oz) had no detectable control on spider mites.

Contact Steve Tjosvold to receive a complete research report that includes, experimental methods, results and discussion.

Update on Virus in Greenhouse-grown Cut Snapdragons

In the Fall 2001 *CORF News* issue, I reported a new finding of extensive virus-like symptoms on a large summer planting of cut snapdragons growing in a Monterey Bay area greenhouse. The symptoms were similar to those I found in 1999 when virus-like particles were discovered in affected plants. The plant samples were tested for the 8 most likely virus pathogens. In the 1999 sample, no identification of a virus was made nor was another causal agent found. Analysis of the new symptomatic plants also failed to substantiate a virus

pathogen. Again virus-like particles were found in the plant cells. But plants showing symptoms did not have substantially higher concentrations of the virus-like particles than those plants that did not show symptoms. Therefore, again, we could not conclude that the symptoms were caused by a virus and could not identify any alternative pathogen.

The symptoms start to show up when the flower buds start to fully swell but before they open. The plants are about 3 feet tall when symptoms appear (a harvestable planting would be around 5 feet tall). The first symptoms show up on the older foliage and as the plants reach maturity the symptoms appear to "move up" onto younger foliage. Leaves have bleached irregular areas and circular patterns only visible on the top surface of affected leaf. The leaves are not distorted as might happen with downy mildew.

Sudden Oak Death

The media reported information that coastal redwood could be a host of *Phytophthora ramorum*, the pathogen that causes Sudden Oak Death. This stemmed from reports that scientists found the DNA of the pathogen in redwood tree tissue in a northern California location. Unfortunately the release of this information has created undo consternation. We can not say that an organism is a pathogen until specific studies are completed. Those studies answer specific questions that arise from 'Koch's postulates,' a principle that is used in medicine and plant pathology. To prove an organism is a pathogen the isolated pure culture of the organism must be shown to infect the host and cause disease symptoms. Then the organism must be isolated again from the host and finally identified as the same organism that caused the infection and symptoms. To date, those studies are not complete. Everyone take a deep breath and be patient!

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Field Observations

Chrysanthemum White Rust Quarantine

Chrysanthemum White Rust (CWR) caused by the fungus *Puccinia horiana* was found in an Oxnard nursery last December on potted chrysanthemums. This is the first sighting in the Central Coast area since October 2000, when it was found in a Carpinteria nursery. Because CWR is under an eradication program in California, County Agriculture Commissioner staff in both Ventura and Santa Barbara Counties, the USDA and CDFA have been inspecting chrysanthemums, looking for further signs of the disease. There are no other site-findings to date. Infected plants develop light green to yellow spots up to ¼ inch in diameter on the upper leaf surface of infected leaves. Eventually, raised, waxy, pink-colored pustules are formed on the lower leaf surface, which become whitish as they mature. Mum growers should use a preventative, fungicide treatment because cool, damp weather proliferates the disease. Several fungicides can be used, in combination with the eradication of infected plants and crop-free periods (8 wks). Once the disease is confirmed, CDFA requires a control program of 3-5 applications of Eagle or Systhane (myclobutanil); the number of applications depends if the crop is in an infested or non-infested area, or if it is propagative material. Banner Maxx (propiconazole), previously recommended as the treatment for eradication programs, may cause phytotoxic symptoms on some cultivars. Details concerning approved CDFA treatments can be found at <http://pi.cdfa.ca.gov/pqm/manual/pdf/411.pdf>. Check with the County Agriculture Commissioner because infected plants/flowers cannot be moved or sold, and clean up of the infestation in quarantined areas has to be done to CDFA's satisfaction. Growers in non-regulated areas can rotate with Dithane (mancozeb) and Daconil(chlorothalonil) as a protectant treatment program; repeated use of myclobutanil can cause some stunting of mums.

Regional Report

Ventura & Santa Barbara Counties

Carpinteria Valley Greenhouse Program



Dec 3, 2001 was a bleak day for Carpinteria greenhouse growers. After a two-year struggle to stop the

Carpinteria Valley Greenhouse Program zoning and regulation changes proposed by the County of Santa Barbara, the Board of Supervisors conceptually approved the implementation of the program. By this action, the County plans to add a new overlay district in the coastal zone of Carpinteria that would create two agriculture zones.

The larger of the two zoning areas would permit new development of open field and orchard agriculture. No new greenhouses and related development, packing and shipping facilities, shade houses, or hoop structures over 20,000 square feet would be permitted in this area. This will potentially be financially disastrous to growers who recently purchased land in this zone (currently valued at 50-\$100,000/A) with the intention of producing greenhouse crops. (Greenhouse crops gross about \$220,000/A but field-grown cut flowers and avocados only gross between \$17,000-\$20,000/A).

The smaller agriculture zone area will include a 2.75 million square feet development cap for new greenhouses and related development (e.g. packing facilities, parking and driveways, boiler rooms, storage sheds) upon adoption of the program. It is proposed that hoop houses and reconstruction of unpermitted structures to conform with new standards is all to be figured into the cap, but shade houses are excluded.

The program calls for a number of new permit and building requirements that include the following: (1) greenhouses, shade houses and hoop construction over 20,000 ft. will require a Coastal Development Permit and a Development Plan; (2) a minor Conditional Use Permit will be required for packing and shipping facilities over 5,000 square ft.; (3) greenhouses that are damaged can be recon-

structed in the same footprint, but if damage is at 75% or more, reconstruction must adhere to the new greenhouse provisions. The myriad of requirements for new greenhouse permits include a Traffic Management Plan and a mechanized blackout screen system within growing areas of facilities that light at night. Increased water regulations proposed by the County include an irrigation water detention system, if deemed necessary, as well as a mandatory flood retention basin and potential groundwater monitoring. Based on a recommendation by the Channel Islands Keepers at the December 3 hearing, the Santa Barbara County Board of Supervisors may make water recycling mandatory. The Board decided to require greater setbacks, building height restrictions and landscaping to reduce visual impacts, and to eliminate the 65% maximum lot coverage originally proposed. A continuance hearing is scheduled in February to review the modified EIR, and to develop revised permit standards for shade houses and hoop houses. The current program provisions would require that shade and hoop structures over 500 square feet be subject to a Coastal Development Permit, a process that typically takes two years to finalize.

Although the premise of the Carpinteria Valley Greenhouse Program is that greenhouses are more detrimental to the environment than open field agriculture, there is little to support this perception in the EIR. It appears that the real public concern is the visual impact of greenhouses. Glare from greenhouses, industrial views, and objectionable noises can all be minimized by using generous property setbacks and landscape screening. Neat and attractive operations can be as important as using environmentally responsible practices in maintaining public support of the greenhouse industry.

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Regional Report

San Diego County

SAF Insect and Disease Management Conference to be Held in San Diego



The 18th SAF Insect and Disease Management Conference will be held in San Diego February 24-26, 2002 at the San

Diego Marriott, Mission Valley. This conference is a unique opportunity to focus on integrated pest management of ornamental crops. It brings together some of the foremost researchers in the area of ornamental crops integrated pest management. Michael Parrella, Margery Daughtrey, Ron Oetting, Ann Chase and Heather Costa are a few of the experts who are presenting information. This conference is also a wonderful opportunity to connect with growers from all over the nation and other countries as well.

Seminar topics include spider mites, downy mildews, leafminers, whiteflies and whitefly transmitted diseases, TMDLs in water runoff, bacterial diseases, mealybugs, rusts, thrips, fusarium diseases as well as new and emerging insects and diseases. Hands-on sessions include weeds, nematodes, how to set up biological control programs, scouting tools and techniques, use of disease diagnostic kits, and making the best use of your pesticides. The tour will visit Dramm and Echter, Herb Thyme, Carlsbad Flower Fields, and Weidner's Gardens.

For more information or to register: www.safnow.org Phone (800) 336-4743, FAX (703) 836-8705. You won't want to miss this opportunity!

Reflective Mulch Trials Continuing

Evaluations of reflective mulch and reflective overhead netting are continuing in southern California through a grant to Julie Newman, Heather Costa and myself from DPR. A trial on field-grown chrysanthemums was recently completed; in fact, data is

still being obtained and analyzed. Some observations from this trial can be shared now, however.

The treatments were 1) bare ground as a control, 2) dark mulch on the ground as another control treatment, 3) reflective mulch on the ground, 4) overhead reflective netting and 5) a combination of reflective ground mulch and reflective overhead mulch. The ground mulches were laid just prior to planting and the overhead mulch went above the crop a few days after planting and was raised to stay just above the canopy throughout the crop cycle. Evaluations of insect presence, soil and air temperature, weed pressure, and stand quality were made throughout this trial.

Reflective mulch, dark mulch and overhead netting all increased plant height and fresh weight of the plants in this trial. The treatments did not appear to increase the number of flowers per plant. Another effect, which was noticed but not quantified in this trial, was reduced erosion in the ground mulch treatments.

Sticky card data on thrips numbers indicates that early in the crop cycle, all the mulch treatments and overhead netting treatments had reduced the numbers of thrips compared to the bare ground control. As the crop grew and the canopy covered the ground mulches, however, this advantage was lost and thrips numbers were equal to or greater than the bare ground. The two treatments with overhead reflective netting, however, maintained very low numbers of thrips throughout the entire crop.

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Field Observations

This past fall many growers in San Diego County were heavily impacted by neighbors' pest control problems. Whitefly populations the likes of which I haven't seen since the bad old days of the silverleaf whitefly in the Imperial Valley were moving from vegetable crops and overwhelming ornamental plant growers IPM strategies. This problem isn't unique to San Diego County, and it needs to be addressed in a proactive way as soon as possible.

Daylily Rust Strikes Again

Four nurseries in this county have been identified with daylily rust *Puccinia hemerocallidis*. All growers of daylilies should be on the lookout for this serious problem. In addition to *Hemerocallis*, this rust will also attack *Hosta* and *Patrinia*. It is established in some of the southern states and was first discovered in California in 2001.

This rust looks similar to many rusts we are already familiar with, such as snapdragon rust or geranium rust. For more information on this rust, see <http://doacs.state.fl.us/~pi/enpp/pathology/daylily-rust.html>.

Other rust diseases are also becoming more evident at this time.

In general, rust diseases are favored by moderate temperatures. Water is required for short periods (6-8 hours or less) for germination of spores and infection to occur. Once infection has occurred, water is no longer needed for development of the disease.

Continued development, infection and spore production will continue for the life of the leaf.

Cultural control methods include not replanting crops in the same soil season after season and avoiding overhead irrigation.

New Publications

Submitted by Ann King, UCCE Farm Advisor, San Mateo & San Francisco Cos.

The UC Interactive Tutorial for Biological Control of Insects and Mites. Pest management professionals and growers will benefit from this new interactive CD-ROM (Mac and Windows compatible). The tutorial is a teaching tool for biological control. With more than 60 beneficial species covered on 75 narrated screens (and 350 color photos), it teaches users to recognize signs of parasitism and predation, identify specific natural enemies of common pests, and understand the biology of predators, parasites, and pathogens. It provides instruction on releasing commercially available biological control agents. Integrating the use of pesticides and other practices with biological control is also included. Twenty-four interactive games and quizzes are included.

UC ANR Publication #3412; cost \$30; available at (800) 994-8849, or <http://anrcatalog.ucdavis.edu>

Energy Conservation for Commercial Greenhouses. This newly-revised, 84-page book reviews the merits and limitations of current energy-conservation strategies. Written by John Bartok, University of Connecticut professor emeritus, topics include heat loss, site selection and modification, construction materials, fuels and heating, utilities, ventilating and cooling, space use and reducing trucking costs. Available through Cornell University; cost \$17; web site <http://www.nraes.org>, or contact by e-mail at nraes@cornell.edu

Postharvest Technology of Horticultural Crops. This always-useful University of California publication (535 pages) is newly revised, and is useful to all growers, including flower growers.

UC ANR Publication #3311; cost \$65; available at (800) 994-8849, or <http://anrcatalog.ucdavis.edu>

California Master Gardener Handbook. At over 700 pages, no other California gardening guide contains this depth of information. This handbook is an invaluable reference for retail nursery staff, Master Gardeners, and California gardeners. Chapters cover soil, fertilizer, water management, propagation, weeds and pests, home vegetable gardening, lawn care, woody plants, and landscape design. Chapters provide information on selecting varieties, planting, growth cycles, pruning, irrigation, and harvesting.

UC ANR Publication #3382; cost \$30; available at (800) 994-8849, or <http://anrcatalog.ucdavis.edu>

Integrated Pest Management for Floriculture and Nurseries. 300 photographs, 164 line art illustrations and tables. This 422 page manual (ANR Publication 3402) can be purchased for \$45 a copy plus tax and shipping, with discounts available for purchases of 10 or more copies. The new guide is available at some local UC Cooperative Extension offices, directly from ANR Communication Services (6701 San Pablo Avenue, 2nd Floor, Oakland, CA 94608-1239), or by phone (800-994-8849), fax (510-643-5470), and online at <http://anrcatalog.ucdavis.edu/>.

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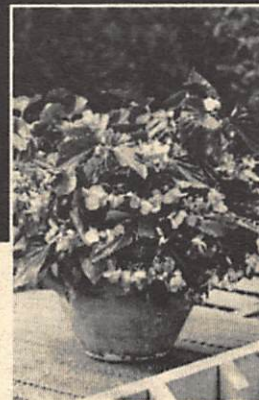
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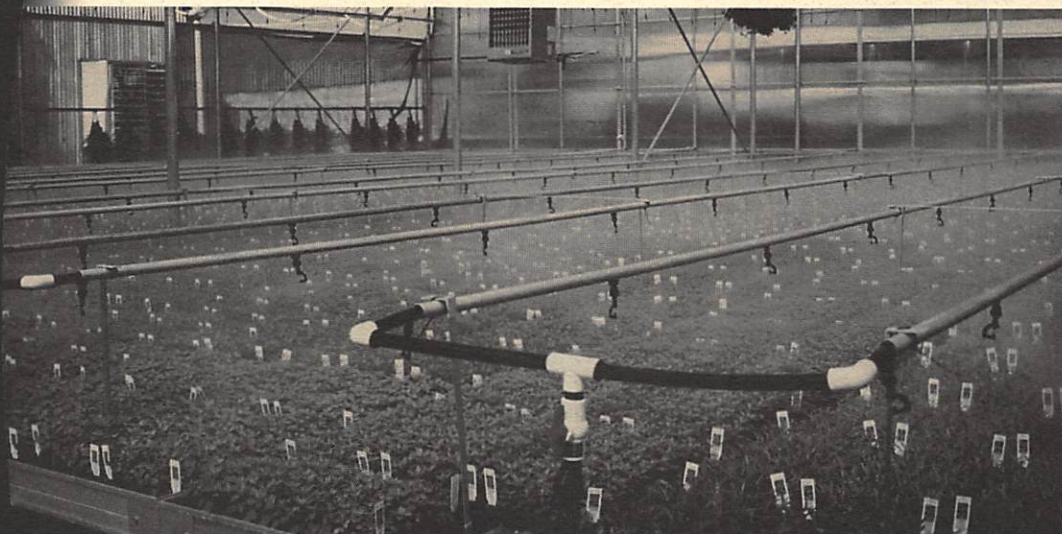
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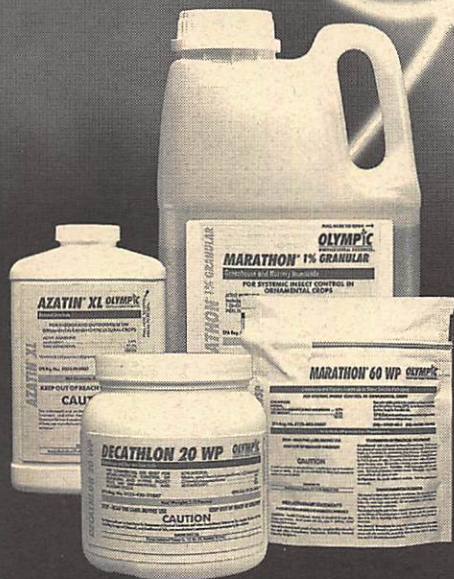
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Internet Sites - Organizing Your Webpage Bookmarks

By Dr. Donald Merhaut, Extension Specialist, Nursery and Floriculture, UC Riverside

Each month we list different websites that may be of interest to you. Eventually that list gets too long. There are several ways to keep your 'Favorites' or 'Bookmarks' organized so you can find information easily and quickly. Unfortunately, there is no option to search for keywords in your bookmarks as there is in other types of programs.

Folders - In Microsoft Internet Explorer there is a selection above your sites called 'Organize.' This will permit you to create folders to put your different sites into. The experts in the management field feel that the typical person can remember up to nine different categories easily. I have basically all of my information organized into eight categories. Just to give you an idea how I have organized things on my computer, I have listed six categories: 1-Administration, 2-Extension, 3-Laboratory, 4-Grants, 5-Societies, 6-Literature. Within a folder, you can also create other folders. To create a folder, do the following: Click on 'Organize' at the top of your 'Favorites' or 'Bookmarks' file button and a window will open offering you the ability to create a folder. Click on 'Create Folder.' Type in the name you want this folder to be called. Drag and drop any website addresses you wish to add to that folder.

Names - You don't have to leave those addresses as a bunch of abbreviations with dots and slashes that make no sense. You can rename the site, without affecting its ability to find the address in the web. To rename a site, do the following: 1. Right click on the site you want to rename. This opens a window with a list of options. 2. Left click on the 'rename' and type in the name you want to call the file. I.e. instead of www.gov.CA.ipg-245TMDL you may just name it 'California TMDLs'.

Shortcuts - If you are already online, you don't even have to open the internet page to get onto a site that you are interested in. For example, I frequently get information from the University of California Directory which is located on the web. To get to it quickly, I just have to press 'Ctrl-Alt-1' and it will automatically open the site, even if I am in Word, PowerPoint, etc. To create a shortcut for a frequently used site: 1. Right click on the site name in your 'Bookmarks' or 'Favorites' list. This will open a window with several options. 2. Left Click on 'Properties,' 3. Left click on the 'Web Document' tab, 4. Left click inside the "shortcut" box where it says 'none' and type the key that you want to use as the shortcut key. It will automatically define it as Control-Alt- (key that you typed).

Desktop Shortcut - You can also make a shortcut via a desktop icon. I don't like to do this because the desktop gets cluttered with a lot of icons. To create this type of shortcut: 1. Right click on the site name in your 'Bookmarks' or 'Favorites' list. This will open a window with several options, 2. Left click on 'Send to' which opens a list of selections, 3. Left click on 'Desktop' - This will create an icon directly on your desktop.

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Campus News & Research Updates

Submitted by Julie Newman, UCCE Farm Advisor, Ventura and Santa Barbara Cos.

Campus News

UC DAVIS AND CAL POLY. Graduate students can now combine advanced agricultural studies at the University of California, Davis, and California Polytechnic State University, San Luis Obispo, through a new graduate program designed to benefit students across the state. The McOmie Graduate Education Program, made possible by a private gift to the two universities, provides students the opportunity to complete their master's studies in Cal Poly's College of Agriculture and continue their doctoral studies through graduate programs in UC Davis' College of Agricultural and Environmental Sciences. This agreement strengthens the research connection between the UC and CSU systems and provides UC Davis with highly qualified students for doctoral studies. The new program, formally launched in September 2001, affirms the informal relationship between the two universities in the agricultural sciences that has been established over the years as Cal Poly graduates have gone on to pursue advanced degrees at UC Davis. In 1975, Lorenzo and Judith McOmie established the McOmie charitable remainder trust as a \$5 million fund at UC Davis and Cal Poly to support agricultural research programs at both universities. UC Davis' half, now valued at \$10 million, is the second largest gift ever to the College of Agricultural and Environmental Sciences.

UC DAVIS. DEPT. OF ENTOMOLOGY.

Chris Casey, a Ph.D. candidate of **Dr. Michael Parrella**, has accepted an extension/research position at North Carolina State University and will begin this April. This position, a replacement for Dr. James Baker, will focus on developing IPM strategies for the floriculture/nursery and landscape industries in North Carolina. Chris's research in California has focused on spider mites on roses and thrips/tospovirus. She was instrumental in leading the Rose Pest Management Alliance, working with Dr. Parrella; **Lee Murphy** (California Cut Flower Commission); **James MacDonald** and **Linda Bolkan** (Dept. of Plant Pathology); Farm Advisors **Dr. Karen Robb** (San Diego County), **Steve Tjosvold** (Santa Cruz and Monterey Counties) and **Julie Newman** (Ventura and Santa Barbara Counties); and numerous industry representatives and

grower-cooperators. Two recent publications regarding the Rose Pest Management Alliance can be found in the monthly USDA-ARS publication at <http://www.ars.usda.gov/is/AR/archive/sep01/rose0901.pdf>, and in the October issue of *GrowerTalks* magazine ("IPM Works for Rose Growers," 65 (6): 52,54,56,58). E-mail: Christine Casey cacasey@ucdavis.edu.

Ms. Heather Laughlin, a new Master's student in the Plant Protection and Pest Management Program, has recently joined the Parrella laboratory. She will work on the identification and control of mealybugs affecting ornamental plants in California. Heather and Michael Parrella plan to initiate a statewide survey of mealybugs via on-site inspections of selected nurseries and greenhouses in California. They would appreciate hearing from anyone who is having mealybug problems (e-mail: mpparrella@ucdavis.edu).

Dr. Parrella has secured funds from the California Department of Pesticide Regulation (DPR) to develop a proposal that will form the basis for a **Gerbera Pest Management Alliance in California**.

Those on the Alliance in addition to Dr. Parrella are James MacDonald; **Richard Evans** (Dept. of Environmental Horticulture); **Roy Kaspi**, (Dept. of Entomology); Farm Advisors Steve Tjosvold, Julie Newman, and Karen Robb; **Richard Lindquist** (retired from the Dept. of Entomology, Ohio State University, OARDC—now with Olympic Horticultural Products); Lee Murphy; **Dave Barcel** (Uniroyal Chemical); **Carla Thomas** (FieldWise, Inc.); **Vicki Westerling** (Western Farm Service); **Laura Constable Beatty** (United Horticulture Supply); **Jack Handly** (Dow Elanco); **David Cox**, **Dan Cahn**, and **Heidi Petersen** (Syngenta); and **Thomas Kueneman** (Plant Sciences, Inc.). The Alliance will meet over the next few months and will be discussing ideas for a full proposal that will be submitted to DPR. The Alliance is not closed by any means, and anyone interested in getting involved is invited to contact Dr. Parrella (e-mail: mpparrella@ucdavis.edu). More pest management consultants are especially needed, in addition to growers willing to serve as cooperators.

Fiona Goggin, a Ph.D. student of **Dr. Diane Ullman**, received the 2001 Entomological Foundation Plant Resistance to Insects Graduate Student Research Award. She has studied *Mi*, a resistance gene in tomato that is active against the potato aphid *Macrosiphum euphorbiae* and root-knot nematode. Her research has involved characterizing gene expression and resistance in plants transformed with *Mi*. She has collaborated with **Valerie Williamson** in the Nematology Dept. and with DNA Plant Technologies Corporation. Her work has been published in the *Proceedings of the National Academy of Science*, *Environmental Entomology*, and *Plant Physiology* (e-mail: flgoggin@ucdavis.edu).

UC RIVERSIDE DEPT. OF ENTOMOLOGY.

Michael Rust received a 2001 Entomological Society of America Fellows Award. Dr. Rust is a professor and former Entomology Dept. Chair (1992-97). His research has focused on pests in Southwestern urban communities, including ants, cockroaches, fleas, and termites. He has published more than 200 papers, including nearly 130 research and 60 extension publications (e-mail: michael.rust@ucr.edu). He established UCR's annual urban entomology conference that provides training and continuing education for up to 300 pest control operators each year. He has received numerous awards, including Orkin's Research Award three times, the Entomological Society of America (ESA) Distinguished Achievement Award in Urban Entomology; and the ESA Pacific Branch C.W. Woodworth Award. He was a principal investigator on the DPR Pest Management Alliance for the Containerized Nursery Industry project (<http://www.cdpr.ca.gov/docs/emprm/alliance/99-00/evals/99-0201.pdf>), along with **Heather Costa**, **Robert Krieger** and **Les Greenberg** (Dept. of Entomology); Area IPM Advisor **Cheryl Wilen** (San Diego County); and Farm Advisor **John Kabashima** (Orange County).

Research Updates

Host Range of a California Sting Nematode Population

J. Ole Becker, Department of Nematology University of California, Riverside, CA 92521 Ph.: (909)787-2185, Fax: (909)787-3719 E-mail: ole.becker@ucr.edu

See Campus News- Page 15

Campus News

Continued from page 14

The sting nematode, *Belonolaimus longicaudatus*, is a plant-parasite with considerable damage potential in warm, moist and sandy soils. This exotic pest is established in several commercial and private golf courses in the Coachella Valley. Differences in feeding preferences were reported for some *B. longicaudatus* populations from the Eastern US that suggested the occurrence of several physiological races within this species. This study was undertaken to determine the host status of 60 different plant species and cultivars for the Coachella population of *B. longicaudatus*. The results provide information needed to anticipate the potential problems with this nematode for plant industries in Southern California. The host range tests were conducted in irrigated sandy soils under greenhouse conditions at $25 \pm 2^\circ\text{C}$ and ambient light. The population densities determined after 7 weeks of incubation qualified more than 80% of the plants tested as good hosts. Only watermelon, okra, and tobacco were non-hosts among the tested species that included many grasses, vegetables, row

crops and common weeds. This sting nematode population had a high reproductive fitness on a majority of species tested. Thus, this nematode potentially represents a considerable threat to any Southern California plant production operation utilizing sandy soils, including ornamental production nurseries.

Bekal, S., and J.O. Becker 2000. Host Range and Pathogenicity of a CA Sting Nematode Population. *HortScience* 35:1276-1278.

Electronic System for Counting and Sizing Field-Grown Deciduous Trees

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A manually operated electronic system was developed to count and size fruit and nut trees in commercial nurseries. The system can also be adapted for use on ornamental trees. An optical sensor was designed using a high power infrared laser for illumination to allow operation with varying light conditions, including direct sunlight. The optical sensor was mounted on a three-wheeled cart with pneumatic tires and a rotary encoder was coupled to one of the wheels for displacement



Figure: Counting/sizing device

measurement. Signals from the optical sensor and rotary encoder were analyzed with an embedded controller to determine trunk diameter, and running counts were maintained for the standard nursery size grades. A counting mode was also added to count, but not size, trees that were staked. Calibration tests showed that the system could measure trunk diameter to ± 1.9 mm (99.7% confidence) with the sensor 15-23 cm (6 to 9 inches) from the tree line. Leaves, low-level suckers, weeds, and trunk stakes all had the potential to cause inaccurate counting and sizing. This research was supported by the California Association of Nurserymen.

Campus News & Updates

submissions can be directed to:

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CORF News is the quarterly publication of CORF, the California Ornamental Research Federation, a statewide partnership of growers, floriculture associations, allied industry and researchers/educators whose mission is to identify and meet the research and educational needs of the California floriculture industry.

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Calendar of Industry Events

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Days, various sites, 760/431-2572,
planttourdays.org

24-26 .. SAF Pest Management Conference,
San Diego, 800/336-4743,
safnow.org

March

13-17 .. FTD Convention, Chicago
18-19 .. SAF Congressional Action Days,
Washington DC, 800/336-4743,
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April

3-6 WF&FSA Annual Convention, St.
Petersburg, FL, 410/573-0400,
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7-9 LA Mart, Spring Gift, Decorative
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May

30 CORF The ABCs of Horticulture:
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