



Ka Lono Pua

"The Flower News"

Vol. X No. 2, June 2003

Cooperative Extension Service Oahu

County

Slow Summers – a Good Time to Learn

Now that most of the traditional floral holidays are over and less busy times lie ahead, it is a good time to brush the cobwebs from our brains and take on the challenge of learning something new. There are still some graduations, Flag Day, Father's Day, and Independence Day but for most flower growers summer is when you catch up with maintenance and plan the next crop.

In August there will be a new round of Pesticide Risk Reduction Education. These classes are designed to teach growers how to use pesticides properly and help prepare for the Hawaii DOA's certification exam for restricted use chemicals.

Lyon Arboretum and Leeward Community College's Office of Continuing Education and Training are offering a variety of classes and workshops. If you want to do some traveling, there is the Southeast Greenhouse Conference in South Carolina and the world-class Ohio Florists "Short Course" in Columbus, Ohio. Take advantage of some of these opportunities and you will be glad you did.

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Future Happenings

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| Jun 14 | Bamboo Class w Norm Bezona, Lyon Arboretum 9:30-11:30 a.m. To register call 988-0456. |
| Jun 14 | Flag Day |
| Jun 15 | Father's Day |
| Jun 18-21 | Southeast Greenhouse Conf. Greenville, SC (877) 927-2775 |
| Jun 21 & Jul 12 | Native Plant Workshops, Call LCC's OCET office at 455-0477 \$25. See page 4 for details. |
| Jul 4 (Fri) | Independence Day |
| Jul 10-14 | OFA Short Course, Columbus OH (614) 487-1117 www.ofa.org |
| Jul 12 | Lyon Arboretum Plant Sale, NBC, Honolulu 9:00 a.m. – 2:00 p.m. |
| Jul 19 | Midsummer's Night Gleam – Foster Garden 4:00 – 10:00 p.m. |
| Jul 31-Aug 2 | Southern Nursery Assoc. Trade Show, Atlanta, GA (770) 953-4411 mail@mail.sna.org |
| Jul 19 | Hawaiian Lei Making – Wili Method with Brian Choy, Lyon Arb. 9:00 a.m. – noon. \$20. 988-0456. |
| Jul 26 | Hawaiian Lei Making – Haku w/Ti |
| Aug 2 | Hawaiian Lei Making – Other |
| Aug 9 | Heliconia and Ginger Walk with Ray Baker, 9:30 – 11:30 a.m. Lyon Arb. Register: 988-0456, \$10 |

Organic Farmer Cost Share Program

Organic farmers may find the cost of certification a challenge, but this week the Hawaii Organic Farmers Association (HOFA) announced that \$70,000 has been allocated to help them defray the cost of certification.

A program offered by the USDA and administered by the Hawaii State Department of Agriculture (HDOA) is designed to offset the cost of organic certification for qualified farmers, producers and handlers. The cost-share assistance is available on a one-time basis for farm certifications that take place between October 1, 2002, and September 30, 2004. Farmers that paid for certification from a USDA accredited certifying agent this year may be reimbursed for much of that expense. The defrayed cost of certification will cover up to \$500 or 75% of certification cost, whichever is less. Grants will be awarded on a first-come, first serve basis, minus a 4% administrative fee.

Call (808) 832-0700 for an application form or download this form at the HDOA website: www.hawaiiag.org/hdoa/forms.htm. Go to the Quality Assurance Division, Commodities Branch, and click on Application for Cost-Share Assistance under the National Organic Certification Cost-Share Program. Copies of the Organic Certificate and an invoice for the cost of certification will need to be attached to the application form.

HOFA is certified by the USDA's accreditation program to offer quality organic certification services to Hawaii's organic farmers, ranchers and processors of organic products. Farmers who wish to become certified may contact the HOFA office in Hilo, on Tuesday, Thursday and Friday from 8-4 p.m. for an application packet.

Organic farms must allow at least a three-year transition period from the last use of synthetic fertilizers or pesticides prohibited under the federal organic standards. The standards are outlined in the newly revised "Organic

Certification Handbook", available to HOFA members. Other benefits of membership include quarterly newsletters.

The passage of the Federal Organic Rule in December 2000 provides uniform organic standards, which all organic producers must meet. Any product sold, represented, or labeled "Organic" must be produced in compliance with those standards and certified by a third-party certifying agency that has been accredited by the USDA. HOFA is the only Hawaii-based certifying agency to become accredited and can offer certification services at a lower cost than mainland-based agencies.

Becoming federally accredited has other benefits for Hawaii's organic producers. The USDA accreditation program has developed reciprocity with the European Union, Japan and other developed countries in the global marketplace. This means that HOFA-certified products will be accepted as "organic" in the primary markets of the world. Additionally, as a federally accredited nonprofit organic certifying agency, HOFA can assist its certified members in attracting federal funding to spur research in sustainable and organic agricultural methods.

HOFA is organized as a 501c6 organization and membership is open to anyone interested in supporting organic agriculture in Hawaii. Currently, 300 individuals and businesses are active members and there are over 90 HOFA-certified producers in the state of Hawaii. For more information call 969-7789 on the Big Island, or call toll free 1-877-674-4632.

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Sitting in a rowboat, the novice fisherman asked his companion, "Got any more of those little plastic floats?"

"Why?"

"This one keeps sinking."

-Art Sansom

# Pesticide Risk Reduction Education

This in-depth 16-1/2-hour short course is about handling pesticides (including herbicides) in ways that will reduce risks to people and our environment. It will be conducted by an instructor from the Cooperative Extension Service, a part of the College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa.

## Who Would Benefit?

This short course would benefit people who want to (1) be better informed about handling pesticides properly or (2) prepare for the Hawaii Department of Agriculture's certification exam for restricted use pesticides. The course supplements the study packet included with the registration fee.

## Topics

The instructor will emphasize the study packet's "core" materials, which provide information common to all categories of certification. But "category-specific" topics such as pest life cycles, specialized equipment and calculations are covered only in the study packets, not in the short course. So people who plan to take a certification exam should read and study the packet's "category-specific" materials.

Topics covered in the short course include:

- Types and formulations of pesticides
- Understanding pesticide labeling & MSDSs
- Laws and regulations about buying, storing, transporting, applying, disposal, employee protection
- Common pests' general identification features and life cycles
- Common application equipment
- Dilution and dosage calculations
- Pesticide movement and breakdown
- Groundwater protection
- Endangered species protection
- Carry-over, Resistance, Phytotoxicity
- Hazards to pesticide handlers

- Protective clothing and equipment
- Safe mixing, loading, and application practices
- Proper transport, storage, and disposal

## Dates and Times:

August 19, Tue. 12:45-4:15 p.m.; and  
August 20, Wed., 8:30 a.m. - 4:15 p.m.; and  
August 21, Thur., 8:30 a.m.- 4:15 p.m.

Breaks are scheduled 50-60 minutes apart. Lunch breaks are 75 minutes. Instructor will require pagers and phones to be silent during class.

## Location

Kapiolani Community College in Honolulu

## Registration

The registration form is available at our website: <http://pestworld.stjohn.hawaii.edu/pat/schedule.html>, from the Agricultural Diagnostic Service Center (ADSC), the instructor or the Wahiawa CES office (622-4185).

The fee is \$115, which includes classroom handouts and one \$25 packet of study material for the category you choose on your registration form. Before marking your choice on your registration form, find out which applicator category is right for you by consulting one of the pesticide education specialists at the Hawaii Department of Agriculture. Their phone number on Oahu is 973-9401 (1481 S. King Street, Honolulu). The fee for registration is \$90 if you already have a current study packet.

**DEADLINE FOR REGISTRATION:** July 18. The course will be postponed if less than 10 people have registered by this deadline. Enrollment is limited to 25 people.

If you have a disability and need

accommodations to fully participate, contact the Agricultural Diagnostic Service Center (phone 956-6706) by Friday, July 18.

### **Leaflet Available Before Short Course Begins**

You are welcome to download a copy of the leaflet, Test Your Math Skills or to contact the instructor for a free copy. It presents exercises and answers that will help trainees refresh basic math skills needed to understand the instructor's calculation examples.

The exercises review:

- common fractions and their decimal number equivalents
- rounding off
- conversions between \*\* seconds and minutes  
\*\* ounces and pounds \*\*fluid ounces, pints, and gallons \*\*square feet and acres, and
- calculating square feet of rectangular areas.

These basic math skills (and more) will help you answer some of the certification exam questions.

Trainees who find the exercises difficult will get more benefit from the short course if they seek tutoring before the course begins.

If your registration form and payment will arrive after the deadline, contact the ADSC (phone 956-6706) or the instructor (phone 956-6007) to confirm seating availability and to request course registration information which includes your receipt, meeting room location, map, parking information, what to bring with you, and possibly, last-minute changes.

For more information, contact: ADSC phone 956-6706, or the instructor Charles Nagamine phone 956-6007, Fax 956-9675, Email: charlie@hpirs.stjohn.hawaii.edu, or Mail: Charles Nagamine, PEPS Dept., 3050 Maile Way, Room 310, Honolulu, Hawaii 96822.

## **Native Plant Propagation Workshops**

These three-hour workshops feature the Leeward Community College (LCC) native plant gardens of coastal and dry land plants. In the propagation workshop, you will tour the gardens and learn how to start plants from provided seeds and cuttings in the new LCC shade house.

In the maintenance workshop, participants will work in the gardens and shade house to learn about successful planting techniques, weed control, drip irrigation, and pest control. Participants should come prepared for working outdoors.

Native Plant **Propagation** Wkshp: Sat., June 21

Native Plant **Maintenance** Wkshp: Sat., July 12

Time for both workshops 8:00 a.m. to 11:00 a.m.

Offered by Priscilla Millen, Botany Professor at Leeward Community College in room MS105.

Cost: \$25.00 per session.

To register, call Leeward's Office of Continuing Education and Training (OCET) office at 455-0477 or Priscilla Millen: pmillen@hawaii.edu, 455-0285.

For additional information see:  
[http://166.122.32.199/Text03\(summer\)/PE\\_home\\_txt\\_u2003.html](http://166.122.32.199/Text03(summer)/PE_home_txt_u2003.html)

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While the farmer holds the title to the land, actually, it belongs to all the people because civilization itself rests upon the soil.

- Thomas Jefferson

Ralstonia Alert

The USDA- Animal and Plant Health Inspection Service (APHIS) has confirmed that *Ralstonia solanacearum* Race 3, Biovar 2 had been found on geraniums in several mainland greenhouses this past winter. This pathogen causes Southern Bacterial Wilt (SBW).

Symptoms of the disease include signs of wilt or abnormal yellowing of the geranium leaves. The yellowing starts with the older, lower leaves first then progresses up the stem until the whole plant is affected. Eventually the whole plant collapses and dies. Symptoms look very similar to those of Xanthomonas, another strain of Southern Bacterial Wilt and other diseases.

R. solanacearum Race 3, Biovar 2 is cited on USDA's Agricultural Bioterrorism Act of 2002 Select Agents and Toxins List as a serious pathogen of potatoes, tomatoes, geraniums, and other plants. The USDA-APHIS has therefore issued a final action plan outlining the details of the geranium quarantine protocols.

To date, plants have been found in 20 states in 71 different facilities. **No infected plants have been found in Hawaii**, but growers must remain vigilant. For more information about this disease see the USDA-APHIS web site at:

<http://www.aphis.usda.gov/ppq/ep/ralstonia/>
The "Action Plan for *Ralstonia solanacearum* race 3 biovar 2 found in nursery facilities," which was released by the USDA-APHIS, Plant Protection and Quarantine can be found there.

Please reference this material immediately, especially if you have detected any symptoms of Southern Bacterial Wilt, which may be caused by *Ralstonia solanacearum* race 3 biovar 2, on your geranium crops.

R. solanacearum Race 3, Biovar 2 is a soil borne bacterium and will survive in temperate and subtropical climates in soil and host weed species. It doesn't spread easily from plant to plant, except through sub-irrigation water or

stem-to-stem transmission via cutting knives. Growers can easily avoid spreading the disease by simply removing and isolating wilted plants and avoiding sub-irrigation of their geranium crops.

A Goldsmith stock facility in Kenya has been traced to be the source of the current outbreak. Symptomless, but infected Americana 'Dark Red' geranium cuttings in very limited numbers, along with healthy cuttings were shipped to two of their U.S. greenhouse partners for rooting. Glass Corner or Pleasant View greenhouses, the two receiving companies, have now been disinfected and cleared to resume shipping geraniums.

Greenhouses that received rooted geranium cuttings from Glass Corner or Pleasant View greenhouses during a certain time window are potentially at risk. Every greenhouse owner should be extremely concerned with this disease. It is very important that we do everything possible to contain and eradicate this disease.

Growers who find any wilting plants should not destroy their geranium crops. Instead, isolate them and contact Goldsmith Plants, 800-549-0158, for testing.

For more information check out these web sites:

<http://www.ppd.purdue.edu/ppdl/hot03/02-4.html>

<http://www.greenhousegrower.com/ralstonia/>

<http://www.growertalks.com/ralstonia/>

<http://floriculture.osu.edu/archive/apr02/Bacteria1.html>

<http://www.state.me.us/agriculture/pi/pseudomonas.htm>

N is for Nitrogen

Nitrogen (N_2) is an inert gas, Phosphorus (P) is a solid that bursts into flames when exposed to air, and Potassium (K) is a metal that reacts violently with water. These three elements make up the bulk of the dry weight of plants and together with calcium (Ca), magnesium (Ma) and sulfur (S) are called macronutrients.

Nitrogen (N) is the most limiting plant nutrient the majority of the time. It is especially abundant in young leaves and seeds. Nitrogen is an essential part of the structure of every amino acid, DNA, the chlorophyll molecule, proteins, and enzymes. Plant dry weight is 2-5 % N - more than any other element.

Nitrogen is mobile in plants, so if a deficiency occurs, N is mobilized to new growth from the older plant parts. Therefore, old plant parts show deficiency first. Symptoms of a deficiency include reduced plant growth and a lighter green color. In serious situations a yellowing occurs. However, yellowing can also be caused by other conditions including drought, diseases and some insect and mite feeding.

Too much N results in excessive soft growth. Leaves will be darker green and brittle. A high N level tends to attract insect pests – particularly aphids – and make plants more susceptible to various diseases. Visual symptoms are difficult to interpret, because each crop is different and other nutrient imbalances may have similar symptoms.

Most N is mobile in soil and can leach away readily. Both inorganic and organic fertilizers break down to ammonium and nitrate.

One of the lowest cost inorganic fertilizers, **urea**, is water soluble and is quickly converted to ammonium in warm ($> 55^\circ F$) conditions. Plants do not take up urea but it can be leached from the soil with excessive rainfall or over-irrigation.

Ammonium (NH_4^+) is more stable in soil than urea or nitrate. Its positive charge causes it to be attracted to soil. What is not taken up by plants, is quickly converted to nitrate. Excess ammonium will cause weird symptoms of toxicity: rolled leaf margins and chlorosis in varying patterns with necrotic spots. This can occur especially under cool conditions.

Nitrate (NO_3^-) has a negative charge so it is not attracted to soil particles and therefore is leached readily. Consequently, careful irrigation control is necessary to fully utilize nitrate nitrogen. Nitrate is water-soluble and readily taken up by plants – faster than ammonium. Nitrate is toxic to humans at 10 ppm in water – so if it gets into ground water it is a serious problem!

Biological processes quickly convert urea and ammonium to nitrate, which then can be washed away. Therefore, growers should make frequent small applications of N so more is absorbed by plants and less is leached away. This is sometimes called “synchronization” of N applications with plant N use patterns.

Organic N can also be applied. Thin, green leaves decompose quickly, but most organic material breaks down slowly and allows N to slowly be released into the soil. It is therefore less likely to be leached. Once in the soil it is then transformed into the nitrate or ammonium.

Plants are living pumps. Transpired water is lost through the leaves during the day and cools the plant. This loss of water draws water out of the ground, and the water carries the nutrients along with it. This is called mass flow. If plants don't have leaves or the humidity is high, little mass flow occurs. It doesn't pay to fertilize when plants are dormant or without leaves since there is no mass flow to carry the nutrients such as N into the plant.

Soil or media tests are conducted to determine if enough N is available. However a tissue analysis is a better indicator of the nutrient status of a plant. Nitrogen levels in the soil can vary considerably from time to time, so it is difficult to draw conclusions from a single measurement. By taking periodic tissue and soil or media samples for analysis over time you can ensure your plants are getting the optimum level of N.

Make sure your N levels are adequate for your plants, but don't over apply N – a much more common mistake. By applying N in frequent small doses as the plants need it, you can protect the environment and grow healthy, vigorous plants.

“Ka Lono Pua” Goes Electronic

Because the cost of mailing out “Ka Lono Pua” is high in regards to printing, producing and posting, we will happily e-mail copies to those that have access to e-mail.

If you would like to receive “Ka Lono Pua” by e-mail, contact us so we can add your address to our listings. If you don't have e-mail or we don't know what it is, you will continue to receive a regular copy of “Ka Lono Pua.”

The only limits are, as always, those of vision.
- James Broughton

Pride is what you feel when your kids net \$143 from a garage sale. Panic is what you feel when you realize your car is missing.
-Orben's Current Comedy

Greenhouse IPM Mite Control Web Site

Every quarter, Rutgers Cooperative Extension Service publishes on line the Greenhouse IPM Notes. June 2003 issue has a very good article on controlling mites in the greenhouse.

Although it focuses on a number of potted flowering plants like zonal geraniums, impatiens, gerbera, and poinsettias, it has a lot of useful information for many flower growers.

There are also articles on a New Biological Control for Powdery Mildew, and Prevention of Storage Induced Leaf Yellowing on Oriental Lily. In addition there is a list of crop problems with graphic photographs that appeared on the mainland this spring. It is a good list because it alerts you to look out for the pests if you are growing the particular crop.

Check it out at:
<http://rcewebserver.rutgers.edu/pubs/greenhouseipmnotes/2003/ghipmnotes13-06.pdf>

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If you have any questions or suggestions, give me a call at 622-4185, Tuesdays and Thursdays or e-mail me at [mersino@hawaii.edu](mailto:mersino@hawaii.edu).

Mahalo!

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Agriculture Program