

Manganese Toxicity

An experiment was recently conducted by the College of Tropical Agriculture (CTAHR) and Brewer Environmental Industries, Inc., to study watermelon production on high manganese soils. The study was done because of problems watermelon growers experienced in the central Oahu area. Not many flower crops are grown on these high manganese (Mn) soils, but several of the results may have relevance to flower growers.

Growers reported that otherwise healthy watermelon crops planted in the Opaepa area would suddenly crash generally around the time of flowering. The first symptoms of this “crash syndrome” in the crop would be subtle changes in the older leaves. They would develop necrotic spots and crinkling. Production would drop 30 to 50%.

The pH of the soils in Haleiwa town is near neutral (pH 7). It decreases (becomes more acidic) as elevation and rainfall increases. In the Opaepa area the pH is 5 or lower, which is 100 times more acidic than Haleiwa. The soils in the central plain have high levels of manganese. No problems were found at the lower elevations where the soil had a higher pH.

Sugar cane can tolerate high levels of manganese. “Pineapple, like watermelon is sensitive to high manganese and requires foliar application of iron to overcome the toxic effects of manganese. High levels of manganese in the pineapple plant interferes with the utilization of iron.”

The experiment involved adding lime in various forms to the soil and mulching. It found that “the cause of “sudden crash” syndrome of watermelon is manganese toxicity. Applying lime to achieve a soil pH of 5.8 or higher or an equivalent amount of calcium” prevented the syndrome. “The critical level for Mehlich3-extractable soil Mn is 450 to 500 parts per million (ppm).” “High manganese concentrations in watermelon leaves do not necessarily result in manganese toxicity. A better measure of toxicity is the ratio

of manganese in ppm to calcium (in %). To avoid manganese toxicity, this ratio should be kept below 500 to 700.”

Manganese toxicities have been reported on cotton, tobacco and soybeans. Plant tissue analysis values below 20 parts per million (ppm) are usually considered deficient for these crops. Readings of 30 to 200 ppm are normal, and those over 300 ppm are considered excessive or toxic.

How does this relate to the production of flowers? There are a number of floricultural crops being grown on the Wahiawa series soils. Growers in these areas should monitor their soil’s pH, and their crop’s tissue for levels of Mn and calcium. Manganese toxicity can clearly be a problem in these areas.

In the early stages of plant growth, manganese toxicity symptoms may be similar to deficiency symptoms. Both include interveinal chlorosis. The typical spotting is followed by scorching on leaf margins and leaf cupping. In potatoes, the symptoms are chlorosis and black specks on the stems and undersides of the leaves, followed by death of the lower leaves.

Recently in at least a couple of orchid nurseries, high manganese tissue analyses have been reported. Because the plants tested were showing unusual symptoms, it is possible they have some level of Mn toxicity. Because organic media like peat moss can develop a very low pH over time, the high Mn levels in the tissue may be in part a result of the acidic media. In these cases it is suspected that the manganese may have come from pesticides that contain the element.

What to do? Growers should monitor the pH of their media and the manganese and calcium levels in their plants. If these tests show that Mn toxicity may be the problem, growers can add calcium or lime to the media to raise the pH. They can also limit their use of pesticides that have a high content of manganese.

Poinsettia Web Page

While looking for information, I ran across a great web site for poinsettia information. It is at:

<http://aggie-horticulture.tamu.edu/greenhouse/guides/poinsettia/index.html>

The table of contents includes:

- Poinsettia Forms and Styles
- Economics & Marketing
- Cultural Characteristics
- Poinsettia Cultivars
- Production Schedule
- Height Control
- Selecting a Growing Medium
- Water Quality
- Irrigation
- Poinsettia Nutrition
- Insect & Mite Management
- Poinsettia Diseases & Control
- Common Disorders

The site is based on a publication by the same name prepared by Dr. Don Wilkerson, Dr. Larry Barnes, Dr. Bastiaan Drees, and Dr. Charles Hall, Texas Agricultural Extension Service.

U.S. Wholesale Orchid Market

What is the 1998 availability of wholesale orchids in the U.S? Randy Whitesides, consultant with Management & Marketing in Balboa, Calif., said he expects 3-4 million dendrobiums, 1-3 million phalaenopsis, 1 million cymbidiums and 600,000 oncidiums to be sold wholesale by U.S. growers this year.

-GMPRO greEn-MAIL

~~~~~

The woman called an exterminator to find out if he could kill roaches. "Sure can, lady," the exterminator replied. "When can you bring them in?"

-Boscobel, Wis., Dial

## Floriculture and Nursery Crop Research Bill

Here is the proposed language for the bill: Floriculture and Nursery Crop Research. The Committee notes that floriculture and nursery crops represent more than 10 percent of the total U.S. farm crop cash receipts and is concerned that insufficient federal research dollars are currently being devoted to research on these crops. The Committee provides an increase of \$8,000,000 to begin the research plan outlined in the Floriculture and Nursery Research initiative developed by this industry. The Committee specifically notes the reliance of that Initiative upon increased industry-academic-government partnerships. The Committee also notes that the industry currently supports its own research needs at an average annual of \$3,000,000 in private funding to university researchers. To begin reaching the funding balance envisioned by the Initiative, the Committee directs that of the \$8,000,000 increase made available for this research, \$4,500,000 shall be allocated to the Agricultural Research Service centers, of which \$500,000 shall be allocated to the Ohio State University to establish an Ornamental Plant Germplasm Center in conjunction with the USDA National Plant Germplasm System. To expand and link to university partners, \$3,500,000 shall be allocated through multi-state, multi-location cooperative agreements between the Agricultural Research Service and appropriate university researchers. Any overhead assessments shall be deducted from the Agricultural Research Service portion of the allocation.

~~~~~

After a long day on the course, the exasperated golfer turned to his caddie and said, "You must be the absolute worst caddie in the world."

"No, I don't think so," the caddie replied. "That would be too much of a coincidence."

-Larry D. Joyce in Louisville
Courier-Journal Magazine

Integrated Pest Management

A workshop Series for Recertification of Private Applicators of Restricted Use Pesticides

Lynne N. Kaneshiro, M.S. & John J. McHugh, Jr., Ph.D.

Location: Hawaii Agricultural Research Center, Rm. 113 (Main Conference Room)
99-193 Aiea Heights Drive, Aiea, Oahu, Hawaii

Workshop Times: All workshops conducted from 12 noon until 3 p.m. on Tuesdays: 5 May, 12 May, 19 May, 26 May, 2 June and 9 June 1998.

This workshop series is approved by the Department of Agriculture, State of Hawaii, for recertification credit for private applicators of restricted use pesticides (Private or Commercial Category 1a - Agricultural Pest Control for Plants). Six separate workshops will be offered, each worth 3 credits towards recertification. Participation in the entire series will provide 18 credits and permit recertification. Additionally, those needing less than 17.5 credits for recertification can register for individual sessions to fill their needs. Cost per person per session is \$45 per person. Cost for the entire series is a discounted price of \$200. Enrollment is limited and on a first come first serve basis.

Please indicate which session or sessions you would like to attend and make check payable to *Crop Care Hawaii* and mail to (Please include registration form):

Crop Care Hawaii
99-1355 Aiea Heights Drive
Aiea, Hawaii, 96701

For questions regarding this workshop series,
please call: 487-1391

(Cut here and return bottom portion)

Name _____ Phone Number _____

Current certification number _____	Date	Indicate Choice (<input type="checkbox"/>)	Registration Cost
Successful Farming Through Integrated Pest Management	5 May	_____	\$45
Understanding the Farming Environment	12 May	_____	\$45
Agricultural Pests	19 May	_____	\$45
Control Measures * Part I	26 May	_____	\$45
Control Measures * Part II	2 June	_____	\$45
Evaluating Pest Control Efforts & Adopting IPM	9 June	_____	\$45
	Total	_____	
Discounted cost for entire series		_____	\$200

No cash please, only checks or money orders . Your canceled check is your receipt. You must bring your current UPC coded license to each workshop to receive recertification credit, no card no credit.

Marketing Workshop Session 3

On June 23, 1998 a workshop is planned to introduce growers to the database program developed by OmniTrak Group, Inc. The database includes 180 names of buyers on the mainland and a template in which data can be input by the user. The program is very simple being menu driven. It can be loaded onto any IBM compatible computer using Windows 3.1 or Windows 95.

If you would like to attend the workshop or for more information, call Ed at 622-4185. Spaces are limited so registration is on a first come basis. The workshop will be on:

Tuesday, June 23, 1998, 7:00 p.m.
Sherman Lab, Room 112
U. H. at Manoa

Annuals in the Garden

An article in the Wall Street Journal (WSJ) claims "For Gardeners, '98 is the Year for Annuals." Garden gurus are touting annuals, after a decade of pushing perennials. Why the interest in annuals? "Certain annuals offer more color, more sophistication and bloom for a longer time in the summer."

Impatiens may continue to reign as the No. 1 annual, but WSJ indicated "the darlings of the day are unusual types that haven't been seen in decades, flowers with names like cleome and 'Love-in-a-Mist.' Such varieties now being resurrected by specialty growers, are dramatic, unique and, sometimes, more expensive." And just wait until next spring when Martha Stewart adds her namesake to plants sold at Kmart. She is working with growers selecting plants and colors ("Think chartreuse and magenta," she says.).

-GMPRO greEn-MAIL

"Ka Lono Pua" Goes Electronic

Because the cost of mailing out "Ka Lono Pua" is high in regards to printing, producing and posting, we are going to e-mail copies to those that we know have e-mail. E-mail is faster, too - if you check your mail regularly.

If you would like to continue to receive the hard copy in the future, please give me a call at 622-4185. If we do not hear from you, future editions will arrive by e-mail only.

Also if you would like to receive "Ka Lono Pua" by e-mail and haven't, contact us so we can add your e-mail 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."

Mahalo!

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. Check out our web site "Ask the Experts" at <http://www.ctahr.hawaii.edu/~experts/>

Edwin F. Mersino
County Extension Agent
Agriculture Program

~~~~~

The disgruntled diner summoned his waiter to the table, complaining, "My oyster stew doesn't have any oysters in it."

"Well, if that bothers you, then you better skip dessert," replied the waiter. "It's angel food cake."

-Contributed by Robert L. Rodgers

- ❑ Where can you go to receive recertification credits?
- ❑ What are the symptoms of Manganese toxicity?
- ❑ Where can you go to find new customers?
- ❑ What can you do to help the floriculture industry?
- ❑ Where can you go to get a lot of information on Poinsettia growing?

The answer to these and many other questions can be found inside.