Maui Gardening

Summer 2014 Newsletter Of The Maui Master Gardeners Vol. 6 Issue 1

In this issue...

E X P A N D E D

Help Desk

Hours

Monday - Friday

9am to 12pm

1pm to 4pm

Cooperative Extension Service
College of Tropical Agriculture and Human Resources
University of Hawai'i at Mānoa

University of Hawaii CES
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Bldg. 214
Kahului, Maui, HI 96732
(808) 244-3242 Ext 229

Volunteer Management System

(VMS)

Master Gardener Hours Logging

Volunteer Sign-ups

CES Garden Sign-ups

Help Desk Sign-ups

Click Here

The VMS system provides the ability to log or view hours previously logged. In addition, event calendars, project lists and information is posted here.

Little Fire Ants Could Be Huge Problem for Maui

The pale orange Little Fire Ant is only one-16th of an inch long. It should not be confused with the larger tropical fire ant, which also stings and has already established itself on Maui.

Maui County can't tackle this menace alone. "We need each of you to be vigilant."

The Maui Invasive Species Committee (MISC) hosted an informational meeting and film premier on Wednesday, Jan. 8, at the Maui Arts & Cultural Center to encourage community members to learn about the dire consequences associated with an invasive species known as the Little Fire Ant (LFA).

In his opening remarks to the packed house, Mayor Alan Arakawa said, "I have a speech prepared, but I am not going to read it. Instead, I am just going to talk to you."

The mayor proceeded to explain that the county and the state lack the resources and manpower to take on this tiny menace alone.

"This is the worst invasive species we've ever encountered," said Arakawa. "We need your help. We need each of you to be vigilant. The potential harm to our island could be tremendous."

Following the mayor, a short, 30-minute film was shown. "Invasion: Little Fire Ants in Hawai'i" provided additional context and history on this blight. Originating in South America, these tiny stow-aways infiltrated the South Pacific via human commerce and have already established super colonies in similar island environments, such as Tahiti, where they continue to wreak havoc.

First identified in the District of Puna on Hawai'i Island in 1999, these diminutive, yellow ants pack a powerful punch. They have effectively colonized much of the Hamakua Coast, and have now moved onto Kona, negatively impacting agriculture, wild and domestic plants and animals, and the island lifestyle.

For an arboreal (tree dwelling) species, LFAs aren't very good at hanging on. The slightest jostling of a tree or plant can send a shower of stinging ants raining down onto an unwitting victim below.

In addition to having a painful sting, these tiny ants are also "farmers," raising scales and mites on plants to "milk" for carbohydrates and causing great damage to food crops such as kalo (taro).

And the blinding of beloved pets is now a fairly a common, heartbreaking occurrence on Hawai'i Island.

LFA were first identified on Maui by Christina Chang at her Lokelani 'Ohana farm in Waihe'e in 2009. She sacrificed her certified organic standing to allow the use of pesticides in order to save Maui from a potential infestation.

Continued...

For her vigilance and personal sacrifice, Chang was presented the Malama i ka 'Aina Award by MISC Manager Teya Penniman. From the audience, she received a standing ovation.

In the panel discussion that followed the film and award presentation, Dr. Cas Vanderwoude, head of the Hawai'i Ant Lab, said, "An invasion of LFA is a biological crisis. They are a thousand times worse than the species of fire ant that has been terrorizing America's Southwest. They have many 'queens' and form super-colonies that can span thousands of acres."

A self-proclaimed expert at "killing things," Vanderwoude was called in to work with Chang back in 2009. After exhausting all possibilities, Chang agreed to the use of a lesser evil (pesticides) for the greater good.

"This woman Chang is a hero," said Vanderwoude.

"California is talking about introducing an embargo on goods from Hawai'i," he continued. "You cannot afford an infestation on Maui."

According to Vanderwoude, "About a dozen people come into my Hilo lab every day bringing specimens for testing, and about half of them test positive for LFAs."

State Department of Land and Natural Resources Wildlife

Biologist Dr. Fern Duvall voiced an additional dilemma.

"This ant can undo all the good we have done," he said. "Wildlife, such as ground nesting birds, plants and snails, never come into my office. This is why community vigilance is so crucial."

The last panelist to speak was Hawai`i Island Filmmaker Masako Cordray, who shared how personal her journey had become when she purchased some native ferns from a local farmer, only to find they were infested with LFAs. Subsequent research showed that infected ferns had been shipped to two Maui nurseries, and were sold to unsuspecting consumers.

"LFA are on Maui," said Cordray. "We just don't know where."

Continued...

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Maui Weekly
Article by Dr. Janet Six
Contributing Writer

This is why MISC's "Spot the Ant - Stop the Ant" campaign is so critical. If you suspect you have spotted LFAs, take a chopstick and lightly coat it with peanut butter and stake it next to the suspect plant. (Apparently, LFA cannot resist peanut butter.) Wait 45 minutes. If the chopstick is covered with tiny ants, place it in a Ziplock bag, put it in the freezer long enough to kill all the ants and then send it along with your contact information (be sure to include your address), to the Hawai'i Department of Agriculture, 1428 S. King St. Honolulu, HI 96814-2512. Call (808) 973-9560.

If a specimen tests positive for LFAs, expect a visit from Vanderwoude and his team of ant assassins.

Editor's Note

According to The Maui News, Lowe's Home Improvement and Home Depot were identified Thursday, Jan. 9, as stores to which hapu'u (Hawaiian tree) ferns were shipped with infestations of LFAs. State Department of Agriculture officials ask those who purchased a fern from either store over the last 12 months to check the vicinity of the plants for LFAs. The Maui News also reported that residents should call the Agriculture Department's Plant Quarantine Branch in Kahului at 872-3848 about suspect ants. The office is open weekdays from 7:45 a.m. to 4:30 p.m. The Maui Invasive Species Committee's phone number is 573-6472.

For more information on LFAs and how you can play an important role in stopping their invasion, visit the Hawai'i Ant Lab Website at www.littlefireants.com and MISC's Website at mauiinvasive.org. For more information on the LFAs and their history in Hawai'i, visit

hdoa.hawaii.gov/pi/files/2013/01/npa99-02-lfireant.pdf.

Junior Master Gardener Program

Are you interested in working with youth? Here is an opportunity to work on a hybrid program between Master Gardeners and 4-H. The Junior Master Gardener program is an internationally recognized program with fully developed curriculum.

There is information on the program and the curriculum at http://www.jmgkids.us/. If you are interested in working on this program, please contact Lorraine at brooksl@ctahr.hawaii.edu or 244-3242, ext. 229.

Some Like It Hot!

By
Pamela Miller

It's a Nauhatl word. The Mayans drank it with their chocolate. It's a fruit. It's from the nightshade family. It's been part of the human diet for at least since 7,500 BCE.

Christopher Columbus was one of the first Europeans to encounter them (on his trip out west), and his physician, Diego Alvarez Chanca brought them back to Europe in 1494 and mentioned their medicinal properties. Surely you have guessed: Capsicum frutescens. Capsaicin is 8-methyl-N-vanillyl-6-noneamide, and that ain't vanilly!

This chemical (when ingested or applied topically) sends a message to the brain that the body's on fire and the heart needs to mobilize the blood stream to increase perspiration to extinguish it! Who in their right mind would wish a body on fire, one might ask!

Endorphins! The pay-off! Never mind the capsaicinoids have bound to pain-receptors in the mouth and throat! Never mind capsaicin alters how the body's cells use energy produced by hydrolysis of ATP. What? You ask? Capsaicin alters the conformation of the SERCA, reducing the ion movement of calcium into the sarcoplasmic reticulum? The what? ATP energy is released as thermal energy! You are on fire!

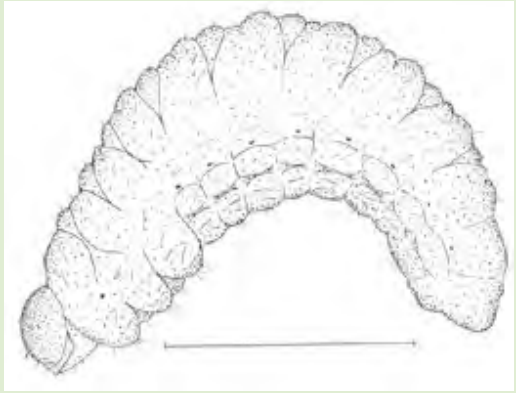
Had enough? There's more! You don't have to eat it! Capsaicin is a safe and effective topical analgesic; useful in managing arthritic pain, herpes zoster, diabetic neuropathy, mastectomy pain, and headaches! This is a secret the drug industry has kept from us for too long!

Some creatures have evolutionary advantages in the form of lessened sensitivity to the effects of chili: birds, for instance. They enjoy the seeds from the pods and distribute them through their digestive tract, unharmed: the magic symbiosis to ensure the continued evolution of chilis. Capsaicin flesh has natural anti-microbial properties against fungi that may enter through pepper skin punctures, by various insects.

Yes, insects also prefer it hot, including the frugivorous tephritids! What's more, these dacine pests live in Hawaii's pepper populations. Some even prefer this host: the hotter the better!

The pepper weevil larva, and the Bactrocera latifrons, also known as the Malaysian Fruit Fly has favorite lodgings on Maui, among the solanaceae, such as tomato, eggplant, Sodom apple (sounds interesting but bears poisonous berries!), and Turkey berry. How very fickle! On the Big Island, they are smitten with cucurbitae, such as Tunka, ivy gourd, cucumber, and Ipu.

The Solanum fruit fly (Bactrocera latifrons) (She's made the list of invasive species for California) differs from the pepper weevil larva in the former's slender, sylph-like body, while the weevil larva is humpy and fat!



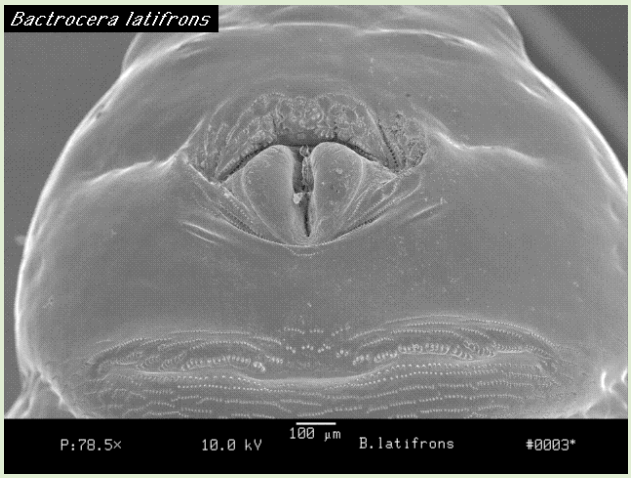
Larva. (Horizontal line = 2 mm).

Larva of the pepper weevil, *Anthonomus eugenii* Cano. Photograph by E.

Anthonomus eugenii Cano (Insecta: Coleoptera: Curculionidae) aka Pepper weevil females deposit eggs singly beneath the surface of the bud or pod of the host, thereby creating a cavity with her mouthparts, and then seals up the puncture wound with a light brown fluid that hardens and darkens. One would notice this brown patch on a pepper! You can probably also recognize the damage done to the fruit from the stem-part entry.

How primitive! The female Solanum fruit fly has an ovipositor!

Bactrocera Latifrons



With a phlebotomist's precision she inserts her eggs inside the pepper and flies away. The deed is undetectable until the pepper is harvested and cut open. Oh, there may be some necrosis around the sting, followed by decomposition of the fruit, if it gets too ripe.

The Help Desk has had two clients this past month with critters inside their peppers. One fellow brought in perfectly normal looking, flawless-appearing cayenne as well as Hawaiian hots (aka Thai), complaining of worms inside. We donned gloves and with a box-cutter opened one of the peppers. Our eyes began to water from the vapors! These were indeed the hotties! Inside, greeting us, was the slender form of what our fearless leader identified as a fruit fly larvae. Alas, neither of us thought to collect a sample to submit for positive identification of species. Hopefully our pepper farmer will incubate another of his pepper pods in a jar with a screen on top, and see what pops out.

There is one other pest in the Diptera Tephritidae family, Zonosemata electa, which hasn't been caught trespassing in Hawaii….yet.

There is yet another pest Anastrepha Ludens or Mexican Fruit Fly, which has hitch-hiked from its native Mexico into Texas, and has been placed on the USDA's list of invasive tephritid species.

There is a Pepper Fruit Fly (not to be confused with subject here), Atherigona orientalis (Schiner) (Inseca: Diptera: Muscidae, not Tephritidae), which thankfully is not yet resident in Hawaii. It belongs to the same family as the common house fly, and is considered a secondary pest or "trash fly", not of agricultural regulatory importance in the US, but has become a nuisance in New Zealand.

Be on the look-out for unusual pests in unexpected places! It may be your turn next.

The CES Garden needs YOU in time for the Statewide Conference coming up in October!

Your help will be so appreciated…

Merry Tamashiro; merrytamashiro@yahoo.com is looking for some help to refurbish and rejuvenate the gardens in time for the Statewide Conference.

Wednesdays ~ 7:00am to 10:00am

Saturdays ~ 7:00am to 12:00pm

Sign up via the VMS Calendar:

Click for VMS Calendar

The Statewide Master Gardener newsletter now available.

To subscribe, follow this link:
http://www.ctahr.hawaii.edu/UHMG/Maui/MGs-only.asp

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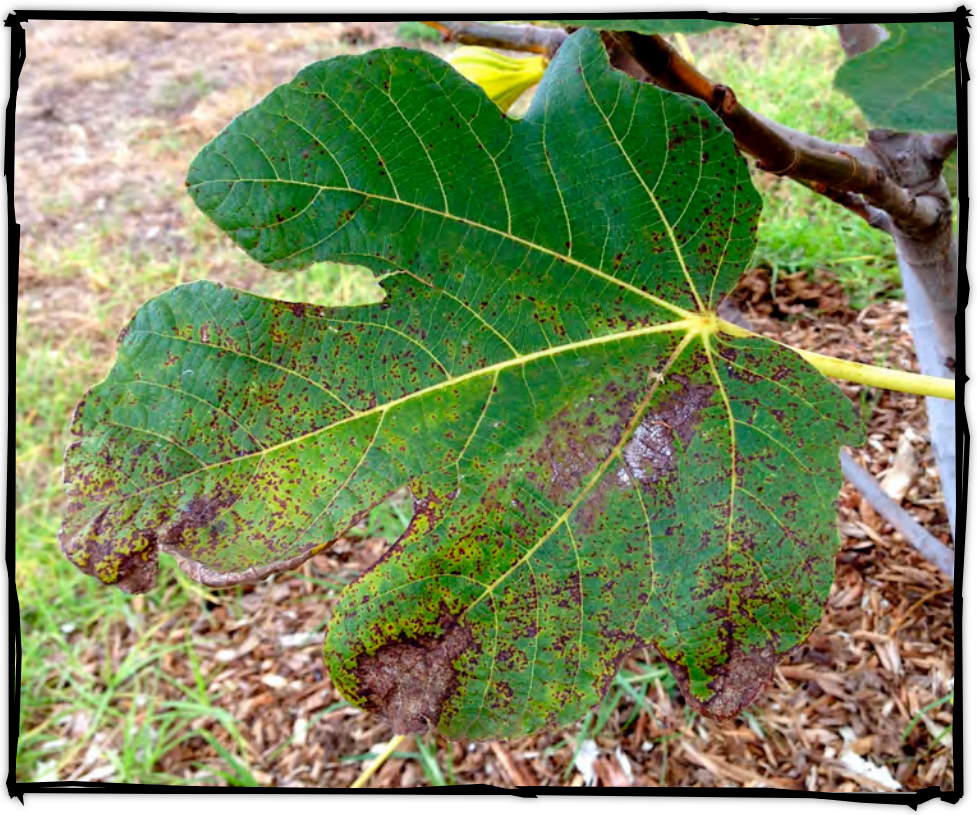
GARDENING CLASSES

In the fall, we would like to begin gardening classes for the general public (Master Gardeners are welcome also). If you are interested in teaching a class, let Lorraine know at brooksl@ctahr.hawaii.edu. Among the classes we teach are gardening in Hawaii, pruning, worm composting, good bugs, bad bugs, plant nutrition, and orchid care. In some cases, presentations have already been developed. If you have other ideas for classes, please let us know.

Speakers Bureau

We often receive calls from organizations to come speak to their groups. If you would like to be on our Speakers Bureau list please contact Lorraine at brooksL@ctahr.hawaii.edu. Please indicate what subjects you would feel comfortable presenting.

PLANT DOCTOR CLASSES
in the works...



Plant Doctor classes will be offered very soon to help with helpdesk skills. Six classes with a practical exam on the seventh week to gain Plant Doctor certification. Classes to be offered:

1. Common Causes of Plant Problems
2. Diagnosing Plant Problems
3. Integrated Pest Management
4. Insects and Other Pests
5. Biotic Plant Diseases
6. Abiotic Plant Diseases

If you are interested in taking or teaching the classes, please contact Lorraine Brooks brooksl@ctahr.hawaii.edu . Please indicate whether or not you are planning on attending or teaching the series or just individual classes and what days and times you are available to attend or teach.

Plant doctor classes are a great way for everyone to become more effective on the help desk.

Welcome

Secusio extensa

Fireweed killer

Please help track observations of the Fireweed moth, Secusio extensa on the island of Maui. Document establishment of the fireweed moth that was recently released for biological control of the noxious weed Senecio madagascariensis. Please post your pictures of this moth (adult and caterpillars) to help us track its progress.

Click Here to read the DOA News Release

Join Secusio Watch Facebook Page

Save the Date
2014 Statewide UH Master Gardener Conference

October 24-26, 2014 on the island of **Maui**

Click Here
For
Conference Info

Welcome Master Gardener Class 2014

Protecting our Pollinators
Maui Educational Apiary Project

Honeybees play a crucial role in the pollination of many tropical vegetables, fruits, and nuts in Hawaii. Their contribution to agriculture is undeniable; nevertheless we find that honeybee colonies are on the decline. The Maui Educational Apiary Project brings together the combined expertise of the Hawaii State Apiary program and the University of Hawaii Honeybee Project in an effort to reach out to the community and offer information about honeybee health, pollination services, and sustainable beekeeping.

Hawaii Apiary Program
Hawaii Department of Agriculture

The health of a honeybee colony can dramatically affect other nearby colonies, and bees also play a critical role in agriculture by pollinating our food crops. A healthy and secure beekeeping industry is valuable to all. For these reasons, State Departments of Agriculture have Apiary Programs to support and regulate beekeeping.

With the recent arrival of Varroa mites, Small Hive Beetle and Nosema cerana, Hawaii received funds from USDA-APHIS to develop an Apiary Program. Some of the funds were used to help UH Manoa's Bee Team start research on honeybee health issues, and some were used to build an Apiary Program within the Department of Agriculture. Currently there are 4 Apiary staff, located in Hilo, offering Education and Demonstration, Biosecurity Surveys, Regulatory Services and Cooperative Research Projects statewide.

The University of Hawaii Honeybee Project

The project was created in June 2008 with initial funds from the Hawaii Department of Agriculture to address the impact of the newly arrived Varroa mite. Since its establishment, the program has expanded its research and extension goals to include:

- Honeybee colony health and pest management strategies
- Assessement of crop pollination needs
- Development of pollinator "friendly" farms
- Education and outreach to beekeepers, growers and Master Gardeners
- Development of a pilot pollinator curriculum for elementary school children.

The project is based at UH Manoa, within the College of Tropical Agriculture and Human Resources (CTAHR). Currently there are three graduate students working on bee health related issues and sustainable beekeeping in Hawaii.

www.hawaiibee.com

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Threats to Honeybees

For the last 150 years, the introduced European honeybee, Apis mellifera, has been an integral part of the agricultural system in Hawaii and the Pacific. However, due to great geographical isolation of the islands, the local honeybee populations have been free of many pest and diseases that had spread on the mainland US and Europe. However, in 2007 a devastating honeybee pest, the Varroa mite, was discovered in Hawaii, and in 2010, another bee parasite, the small hive beetle, was also detected in Hawaiian honeybee colonies. These parasites, associated viruses, and fungal diseases have caused large colony losses for the local beekeepers and greatly reduced the population of managed bees available for pollination in agricultural fields. In addition, these new pests and diseases have decimated the feral honeybee populations on Oahu and the Big Island of Hawaii. The "wild bees" that used to contribute to the pollination of many crops are now scarce. The sudden reduction of the feral bee population in conjunction with the decline of managed colonies has created a grave "pollinator shortage" in Hawaii that we are just beginning to address.

The Varroa Mite

The varroa mite is an ectoparasite of bees. It feeds on the blood of immature and adult bees, and transmits devastating viral diseases, one of which is the so called Deformed Wing Virus, which has been linked to large scale colony losses across the world. Female mites prefer to parasitize drones, due to their larger body size, which results in more mites/cells being produced. In the above image, freshly sampled drones are found to be infested with mites.

The Small Hive Beetle

The life cycle of the beetle is centered on the honeybee colony and both, adults and larvae, consume bee brood and hive products (pollen and honey). In its native South Africa the Small Hive Beetle (SHB) is not considered to be a major pest since it mostly attacks weak hives. In the continental US however, the SHB has caused large losses among managed colonies. The beetle's success appears to be related to climatic conditions. In geographical regions with marked seasonality colonies experience relatively little beetle damage during the winter months, when beetle reproduction is greatly reduced. However, the subtropical climate of Hawai'i allows bees to raise brood year-round, thus providing continuous resources for the beetle. The warm, humid weather also makes pupation possible in most of the Hawaiian landscape and shortens the duration of immature stages. This release from climatic constraints, typical of temperate regions, may be contributing to the explosive beetle population levels recorded on the Hawaiian Islands.

Maui Master Gardener Calendar

July 2014