



Photo: <http://Wildaboutgardening.org>

The Joy of Ex

On Becoming a Master Gardener

By Joy Derksen and Amy Stripe, Editors, *The Master Gardening Bench*

We are an ex-health care professional and ex-ad executive, respectively. We can also say that we are "ex-uninformed" and "ex-hit-or-miss" Florida gardeners.

The joy of "ex" is that we now have the time and training to give back to our community as Master Gardener volunteers, plus have lovely gardens of our own. A new Master Gardener training class starts this August 17th, and we encourage anyone interested in volunteerism and gardening to consider joining us.

Training is lengthy (classes conclude the first week of December) and intense (and intensely interesting). There is a fee (\$200, which includes workbooks and gardening books you get to keep). Qualification as a certified Master Gardener involves committing a minimum number of volunteer hours. But the rewards are vast! Here's what some of our fellow Master Gardeners said about the program:



Helen Pausenwein says: "I became a Master Gardener because I wanted to give back; I enjoy gardening and love sharing my knowledge. The key thing I've learned about Florida gardening through this program is: 'You're not in Kansas anymore!' Florida is altogether different from any other place." Helen conducts one of the Extension's most popular workshops, orchid care, and says this experience, plus working in the Plant Clinic, have "ex-ponentially" increased her confidence in teaching the public about gardening.



Another ex-health care professional and an ex-Connecticut Master Gardener, **Maureen Burke** of Lakewood Ranch wanted to become a Florida Master Gardener because landscape and climate are so different here. "The only palm I knew before moving here was the one on my hand!" She enjoys the camaraderie of other Master Gardeners and learning from experienced gardeners. Her favorite thing about being a Master Gardener is working in the Extension demonstration garden. We have gained from her

love of Florida gardening as she designed and planted a show-stopping bromeliad garden at Extension.



"I have enjoyed gardening for as long as I can remember," reports 21-year veteran Manatee County Master Gardener **Patsy Ugarte**, who took a break today while out kayaking to do this interview. Her husband, Charlie, spotted an article in the newspaper about the program and

suggested she sign up; she wasn't at all fazed by the annual time commitment, even though she's still working. As part of the program, Patsy reports her key learning has been about native plants and that "we can remediate destroyed habitat. We can coexist with nature and not destroy it." She loves volunteering during the County Fair, at AgVenture, and in the demonstration garden's wetlands and fruit orchard.



Karen Pfeiffer doesn't quite qualify as an "ex." She is a working real estate agent who wanted to be challenged by learning new things outside her comfort zone. She was also looking forward to meeting new people with diverse interests. "It was all new to me," she says. She

loves digging in the dirt and is fascinated by the intricacies of plant identification. "Now," she explains, "I stare at leaf shapes, the bark and the flowers on plants." Master Gardening classes have made her much more aware of natural surroundings.

Still interested? Attend an informational presentation on becoming a Master Gardener at the Extension Office on June 10 at 1:00 P.M. (call 941-722-4524 to register). Or download an application form online at http://manatee.ifas.ufl.edu/lawn_and_garden/master-gardener/mg_application.shtml. Lastly, you may call the Extension office at 941-722-4524 ext. 261 to speak to Lisa Hickey, the Urban Horticulture Extension Agent who teaches the Master Gardener Volunteer Training, and request an application form by mail.

Hurry! The deadline is June 17th.



Insect Pheromones and Pest Control

By Jim Haupt, Master Gardener Trainee 2015

One tool in our pest control arsenal is the use of odors called sociochemicals in particular, pheromones (a semiochemical), to manipulate the behavior of insect pests.

Semiochemicals are chemical signals produced by insects and other organisms. Many organisms depend on these signals for survival. Pheromones are a class of semiochemicals that insects release to alter the behavior of other organisms of the same species. They leave the body of the first organism and pass through the air, where they are intercepted by the receiver. In insects, pheromones are detected by the antennae. Many forms of insect behavior are influenced by these chemical signals. When excreted into the environment, these chemicals or pheromones trigger social responses and behaviors crucial to mating, marking trails, recruitment, and alerting others.

The application of pheromones for pest management practices is used to monitor insect populations, disrupt mating cycles, and attract or repel pests from host plants.

For example, sex pheromones are usually produced by female insects to attract the male. In 2006, sex pheromones of a major pest, the citrus leafminer (*Phyllocnistis citrella*), were discovered by California researchers. Leafminer larvae feeding damages leaves resulting in reduced growth rates of young trees. The larvae are difficult to control with foliar insecticides because they are protected within the leaf tissue, resulting in failure of insecticides to control all growth stages. Sex pheromones are the only means by which these small insects find each other over long distances in order to mate.

In Florida, synthetic sex pheromones can be used in two ways to help control leafminer. First, a widespread release

of pheromone disrupts the mating cycle by interfering with the male's ability to find an actual female. Mating disruption is a major component of Integrated Pest Management (IPM) for major moth pests worldwide. This biological control alternative reduces the need to use broad-spectrum insecticides. Second, pheromone baited traps help to monitor when male flights take place and when to apply insecticides that will be effective.

Some insects use marking pheromones to hang a "no vacancy" sign on their host plant, signaling others of their species to lay their eggs elsewhere. Plant-eating insects will mark the host fruit or other vegetative plant parts after depositing eggs. Parasitoids (which prey on other insects) excrete directly on the cuticle of a particular stage of development in their prey to indicate prior ownership.

An example of this pheromone in pest management is the use of synthetic verbenone, a pheromone that acts to disperse adult beetles by creating the illusion that the trees are already fully colonized by the insect. An epidemic of mountain pine beetles (*Dendroctonus ponderosae*) has decimated large numbers of forest trees in the Western U.S. and the EPA registers verbenone as a bio-pesticide for forestry and home tree application.

Homeowners can make use of readily available pheromone traps as well for such common household pests as pantry moths and cigarette beetles. Even the legendary Roach Motel incorporates pheromones these days.

For more information on the ways in which pheromones influence insect behavior and uses in pest management, visit

http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5373188.pdf.

Nutrient Deficiencies in Woody Ornamentals

By Nancy Hammer, Master Gardener 2014; Photos by Timothy B. Broschat, UF

Soils in our area are predominantly sandy, and have a limited ability to retain nutrients. Therefore, woody ornamental plants, which is a term used to define shrubs and trees, can develop nutrient deficiencies. These deficiencies may reduce the health of plants, as well as their visual appeal.

Read on to learn about the most common nutrient deficiencies. Some deficiencies can be diagnosed by studying the leaves. We will also cover details of Manatee County's fertilizer ordinance.

Nitrogen deficiency:

Look for uniform light green or yellow color of the oldest leaves. As the deficiency progresses, the whole plant will be light green and growth will slow.



Photo: Nitrogen deficiency in canistel (*Pouteria campechiana*)

Phosphorus deficiency:

As most Florida soils are high in phosphorus, deficiencies are less common. When it occurs, in some plants, the oldest leaves will be a uniform red. In others, the older leaves will be a yellow-green color. Plants will also be stunted.

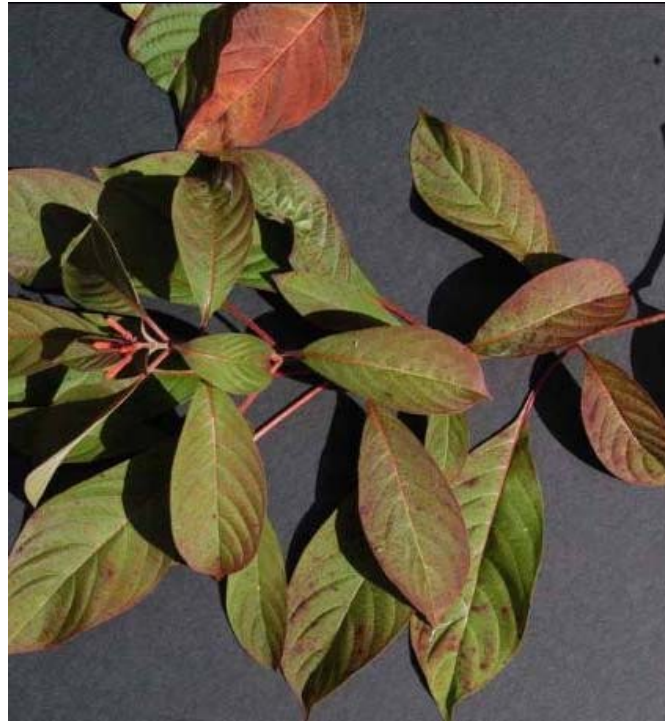


Photo: Phosphorus deficiency in firebush (*Hamelia patens*)

Potassium deficiency:

Look for necrotic spotting on leaves (spots of dead leaf tissue), and interveinal chlorosis (loss of green color), or necrosis of leaf margins (dead leaf edges).



Photo: Potassium deficiency on black olive tree (*Bucida buceras*)

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Magnesium deficiency:

This is probably the most commonly recognized nutrient deficiency in our trees and shrubs. Again, the worst symptoms will be on the oldest leaves. Symptoms include interveinal and/or marginal chlorosis, but not necrosis. In cases of significant deficiency, lower leaves will drop, leaf sizes will be smaller, and there will be slow plant growth.



Photo: Magnesium deficiency in rose bush

The following deficiencies are generally seen on the newest leaves.

Iron:

In areas of poorly drained or alkaline soils or with plants having root problems, iron deficiency can be diagnosed. In this case, examine the newest leaves for interveinal chlorosis. In the worst cases, new leaves may be small and almost white, with necrotic spotting.



Photo: Iron deficiency in orchid tree
(*Bauhinia variegata*)

Manganese:

Symptoms can vary between scattered interveinal chlorosis with green areas around the veins, and chlorotic and necrotic spotting on new leaves. Sometimes newly emerging leaves will be very small with die-back of the leaf tips.



Photo: Manganese deficiency in downy jasmine
(*Jasminum multiflorum*)

For more information on how to diagnose nutrient deficiencies in your ornamental woody plants, and how to remedy deficiencies, please contact the Master Gardeners at the Manatee County Agriculture and Extension Plant Diagnostic Clinic.

As a reminder to Manatee County residents, there is a nitrogen fertilizer ban effective June 1 until September 30. It is vital to protect our ponds, lakes, and streams from nitrogen runoff during our summer rainy seasons. Therefore, no fertilizer containing nitrogen and phosphorus should be applied to lawns or landscape plants during this period.

Residents may still apply potassium, micronutrients such as magnesium and manganese, as well as iron. Compost-based products may also be applied. Phosphorus may not be applied at any time of the year without a soil analysis showing a deficiency, which must be filed with the County Administrator.

Of particular significance during the summer, no fertilizer may be applied while National Weather Service advisories for severe thunderstorms, hurricanes, tropical storms, flooding, or rainfall of 2 inches or more in a 24-hour period are in effect.

Home vegetable gardens and containerized plants are not subject to these restrictions.

For more information, search "Manatee County Fertilizer Ordinance."



Photo: ([James Gathany / Wikimedia Commons](#))

Gardening in the Time of Zika

Joy Derksen, Master Gardener 2004

Zika virus has been in the news nearly every day for the past 2 months. Originally identified in the Zika Forest of Uganda, the virus is spread by mosquito bite. While most people who get Zika suffer no ill effects at all, it is devastating to developing infants. It can also cause rare nerve problems in adults. At the moment you have to go to South or Central America to catch Zika. As of this mid-May, there have been no cases at all in Manatee County, and all of the Florida cases were caught somewhere overseas. But in the future, the National Institute of Health assures us, we will be able to get Zika here at home!

Presently, there is no vaccine and no cure for Zika. If you don't want to come down with Zika you will need to practice mosquito safety. The mosquito that will transmit Zika in Florida, *Aedes Aegypti*, lives in cities and bites during the day. Don't provide water around the yard for mosquitoes to breed in. Make sure you empty containers in your yard that might collect water or drill holes in them so the water drains out. Turn flower pot saucers upside down or remove them. Turn empty flower pots, buckets, and other containers upside down too. Change the water in birdbaths at least once a week.

Put mosquito eating fish in your ponds or water gardens or add Mosquito Dunks which contain Bti (*Bacillus thuringiensis israelensis*). Use Bti in granular form in your bromeliads' cups or wash out the cups with a strong stream of water once a week.

Don't let mosquitoes bite you. Wear long sleeved shirts and pants while gardening. Do use an insect repellent. These are the recommended chemicals with (brand names): **DEET** (Off!, Cutter, Sawyer, Ultrathon), **Picaridin**, also known as KBR 3023, Bayrepel, icaridin (Skin So Soft Bug Guard Plus, Autan), **Oil of lemon eucalyptus** or para-menthane-diol (Repel), or **IR3535** (Skin So Soft Bug Guard Plus Expedition, SkinSmart). You can also buy washable clothing treated with the insecticide permethrin. Be safe out there!

Everything you ever wanted to know about Zika (with constant updates) can be found at the Center for Communicable Diseases website: <http://www.cdc.gov/zika/index.html>.

Manatee County Mosquito Control information about

Zika: http://www.manateemosquito.com/downloads/Zika_FMCA_2016.pdf



Drunken Botany*

By John Dawson, Master Gardener 2007

Photo: Amy Stewart

Most people may never make the connection between booze and botany, but walk into any liquor store and take note that everything on the shelves is derived from plants! All alcoholic beverages are produced by the conversion of sugar in fruits or other parts of plants into alcohol (ethanol – see last month’s article “Is it ripe yet?”) and carbon dioxide by fungi known as yeasts. The process is called fermentation.

Yeasts naturally occur on the skins of most fruits and if the fruits are crushed, their sugar-containing juices begin to ferment. Anyone living near a mulberry tree has probably noticed what happens to birds that eat too many fermented berries off the ground. They stumble and flop around and fly erratically (i.e. they’re drunk!). Early man may have noticed such natural occurrences, tried fermenting fruit, and noticed the intoxicating effects.

Alcohol is easily broken down in humans, affecting the brain’s neurons with a temporary euphoria (high), although it is actually a non-selective central nervous system depressant. The earliest evidence of man’s endeavor to create alcoholic beverages was found through chemical analysis of ancient jars from northern China which confirmed that a fermented drink made of grapes, hawthorn berries, honey, and rice was being produced between 7000–6650 BC.

Alcoholic beverages fall into two categories: (1) fermented beverages and (2) distilled beverages that are obtained by distilling fermented beverages.

Wine is fermented fruit juice. The most famous and mass produced wines are made from grapes. The alcoholic content can vary from 7 to 16 percent. Different varieties of wine grapes provide the different white and red wines. Red wines are from grapes with colored skins and derive their color from pigments and other substances present in the skin. White wines are made from white grapes, or pressed clear juice.

Beer is brewed from fermented grains. Beer was popular during the Middle Ages and for centuries monasteries were the principal source of supply as monks drank beer to supplement their diets during fasting. To make beer, it is first necessary to change the source grain starch into sugar by adding malt and yeast. The commercial manufacture of beer involves two distinct processes called malting and brewing.

In malting, the starches present in grains are converted into sugar. An enzyme, diastase, which is naturally produced during the process of germination, accomplishes this. Barley grain is used almost universally for malting. The grains (seeds) are allowed to germinate in water and laid out to dry. Shoots soon develop and when the shoots are about one-third the length of the grain, they are then kiln-dried for 12 hours, which prevents any further germination and resultant loss of sugars. The end product, called malt, is then crushed, mashed and boiled in water usually with hops (flowers of *Humulus lupulus*) and other flavoring ingredients. Hops not only add flavor but

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help to coagulate and precipitate proteins from the malt. Yeast is then added to begin fermentation. Beer contains 3 to 8 percent alcohol.

Sake is also a fermented grain beverage made from rice and is a traditional beverage in Japan. *Aspergillus oryzae*, a mold commonly found on rice, is used to convert the starch in rice to sugar and then yeast is added. Both are involved in the fermentation process. The mixture is fermented for about 25 days. The alcohol content of sake is about 18-19%. The beverage is allowed to mature for about 40 days and is best consumed within a year.

Hard Cider - Fresh apple juice begins to ferment within 24 hours and gradually increases in alcohol content until it becomes hard cider. While some production of hard cider may be used for beverage purposes, a greater proportion is allowed to further undergo acetic acid fermentation and become vinegar.

Whiskeys (U.S., Ire)/Whiskies (Scot.) are made through the distillation of fermented grain beverages. Distillation involves converting liquid components to vapor and then condensing the vapor. Once distilled, the mixture is diluted to about 50% alcohol. Whiskeys are usually aged in wood barrels that are often charred. The charred barrel provides some of the flavoring.

Scotch whiskies have a characteristic taste because of the smoking process (over peat) used to dry the malt. **Bourbon** whiskey is made from corn as the primary grain. It is aged for at least two years in new, charred oak barrels.

Rye whiskey contains at least 51% rye grain and also must be aged at least two years. **Irish** whiskey contains barley malt and differs mostly from Scotch in that the malt is not dried with peat.

Gin and Vodka are distilled to a high percentage of alcohol and can be distilled from just about any

fermented mixture including starchy vegetables (e.g., potatoes) and grains. Gin is usually flavored with juniper berries or sloe fruit.

Sloe gin has an alcohol content between 15 and 30 percent.

Rum is made from fermented molasses or sugar cane juice. Rum is usually about 40 percent alcohol.

Tequila and Mescal are distilled from the fermentation of various *Agave* cactus species.

Brandy is distilled wine and is usually flavored with fruit.

Liqueurs and Cordials - Alcohol that is flavored with various essential oils and to which sugar is added constitute the liqueurs and cordials. They are prepared by the addition of the flavoring material to neutral spirits or brandy or by the distillation of fermented fruits.

Many fruits, herbs, and spices are used in flavoring numerous alcoholic beverages. So the next time you imbibe one of your favorite adult beverages, throw a toast to your local farmer. Cheers!

*Consult the book "The Drunken Botanist" by Amy Stewart for more details.



June

CALENDAR OF EVENTS



Date	Time	Event
Starting Wednesday August 17	8:30 a.m.-4:00 p.m.	We've Got A Good Thing Growing! Become a Master Gardener and “get a good thing growing!” We are accepting applications for the Manatee County Master Gardener Volunteer Training Program. This is a 14-week course that will meet weekly on Wednesdays. The \$200 fee covers all textbooks and program materials. Call Cindy Mozeleski (941) 722-4524 to have an application mailed to you or download an application today! Visit: http://manatee.ifas.ufl.edu/lawn_and_garden/master-gardener/index.shtml .
3 rd Tuesday of each Month	10:00 a.m.	Monthly Guided Tours of the Master Gardener Educational Gardens - Join us for a guided tour lasting about one hour. The gardens illustrate a variety of garden styles and techniques, demonstrate Florida-Friendly Landscaping™ principles, educate residents about plants that perform well in Florida landscapes, and inspire garden visitors to follow recommended gardening practices at home. Register by calling the Master Gardener Plant Diagnostic Clinic (941) 722-4524.
2 nd & 4 th Saturday	10:00 a.m.-1:00 p.m.	Ask a Master Gardener – Rocky Bluff Library – 6750 US Highway 301 N., Ellenton. Visit the Extension Master Gardener information table and get answers to your gardening questions.
Saturday June 4	9:00-10:30 a.m.	Florida Backyard Landscaping for Wildlife - With the increasing urbanization occurring in our state, wildlife is being squeezed into fewer natural areas. This workshop can help guide you in landscaping your property to benefit wildlife while being Florida-Friendly. In addition to the increased wildlife viewing opportunities, you will be helping provide the basic needs of many wildlife species. Register online at http://manatee.ifas.ufl.edu or call the Extension Master Gardeners (941) 722-4524.
Friday June 10	1:00-2:00 p.m.	Master Gardener Volunteer Training Meet and Greet – Are you interested in the becoming a Master Gardener Volunteer? Attend this informational presentation on the Master Gardener Program and meet Lisa Hickey, the Urban Horticulture Extension Agent who teaches the training. If you would like to attend, call the Extension Office at (941) 722-4524 ext. 261 or email Lisa at lisa.hickey@ufl.edu . A brief tour of the educational gardens and greenhouse will follow the brief presentation.
Wednesday June 15	10:00-11:30 a.m.	Rain Gardens 101 - Rain gardens are an important part of the Florida-Friendly Landscaping™ concept and serve multiple functions. Rain gardens can provide beauty in your landscape while helping to protect our environment. Join us as we provide information to help you design, install, and maintain your very own rain garden. Register online at http://manatee.ifas.ufl.edu or call the Extension Master Gardeners (941) 722-4524.
Tuesday June 21	1:30-3:30 p.m.	Irrigation with Water Conservation in Mind - This class satisfies the irrigation educational requirement for the Manatee County Outdoor Water Conservation Rebate Program. Topics will focus on how to adjust your in-ground sprinkler system to conserve water, how you can repair parts, and the benefits of installing smart irrigation devices. We will have a brief discussion on Florida-Friendly Landscaping™ tips. Register online at http://manatee.ifas.ufl.edu or call Joann (941) 722-4524.
Thursday June 23	1:30-3:30 p.m.	Landscape Tips for Water Conservation - This class satisfies the landscape educational requirement for the Manatee County Outdoor Water Conservation Rebate Program. Topics will focus on Florida-Friendly Landscaping™ tips such as right plant vs right place, watering efficiently, and the benefits of mulch. We will also discuss in-ground sprinkler systems and the benefit of installing a smart irrigation device. Register online at http://manatee.ifas.ufl.edu or call Joann (941) 722-4524.
Saturday June 25	9:00-10:30 a.m.	Rain Barrel Workshop - Storing rainwater aids in the reduction of stormwater runoff which can help reduce the levels of pesticides and fertilizers that drain into ponds, streams, lakes, and our bays. Learn how to install, paint, and maintain a functional rain barrel. Rain Barrel fee is \$33 check or cash only. Register online at http://manatee.ifas.ufl.edu or call the Master Gardeners (941) 722-4524.



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