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# Hydroponics for Homeowners

Hydroponic gardening is a popular technique that has become widely used in residential landscapes as well as commercial production in recent years. Hydroponics is the art of growing plants without soil; this is not a new concept, it can be traced back as far as the Roman Emperor Tiberius in the first century. When using hydroponic techniques, it is important to remember that the only nutrients available to the plant are the ones you provide, so regardless of the media you choose (rocks, perlite, rockwool, air, or water), you must provide a source of nitrogen, phosphorus, potassium, and micronutrients. There are numerous companies that sell ready-to-use nutrient formulations or if you are doing large scale production it may be cheaper to mix your own.

There are six main types of hydroponics:

- 1. Aeroponics:** In these systems the nutrient solution is misted up or from the sides directly onto the root systems and any excess solution will collect back into the reservoir. This system is the most high tech, but it does not require a growing medium.
- 2. Deep water culture/floating raft system:** This is an open system with floating Styrofoam but can use netty pots or a 5-gallon bucket. This is an inexpensive method which can be built with 2 x 4s and 6-millimeter plastic lining.
- 3. Vertical Drip system:** This is the technique used in conjunction with vertical tower systems. You can grow your choice of crops in a substrate such as coconut core or

vermiculite. The system drips nutrients into each container and you determine the frequency and concentration that you want to use. With a vertical system you can grow more in a smaller space because you're growing up.

**4. Ebb and Flow Systems:** Place a tray on a table which allows the filling of nutrient rich water through one port and another port prevents it from overflowing. A timer is used to fill the tray and then allow it to empty, recycling the nutrients to the reservoir. This system does require a growing medium such as rockwool, netty pots with hydroton, or shale.

**5. Nutrient fill technique (NFT):** This system constantly flows a stream of nutrient rich water through a grow tray (you can use rain gutters). Plant roots are partially exposed to both nutrients and air so oxygen does not become a problem. This system works great for lettuces and herbs.

**6. Wick systems:** You have a series of wicks that constantly pull solution from a reservoir into a growing medium in the tray where your plants live. No pumps or timers are needed for this system, only a reservoir, growing media, and an air stone.

Hydroponics can be a fun, innovative, and effective growing method for home gardeners. There are very few limits on what you can do or use to build the system. You can grow an assortment of crops including herbs, lettuce, flowers, and vegetables; the only limits you have on what to grow are root crops, acid loving plants, and plants that grow large and need structural support. If you would like to learn more check out: <http://edis.ifas.ufl.edu/vh030> and <http://edis.ifas.ufl.edu/hs405>



## Upcoming Events

### July/ August

#### **Dunnellon Satellite Plant Clinic**

July 18, 2017 2:00—3:00 p.m.

*Dunnellon Public Library*

*20351 Robinson Rd, Dunnellon*

#### **Bellevue Satellite Plant Clinic**

July 7 & 21, 2017

10:00 a.m.—1:00 p.m.

*Bellevue Public Library*

*13145 SE Hwy 484, Bellevue*

#### **Downtown Satellite Plant Clinic**

August 5, 2017 10:00 a.m.- 1:00 p.m.

*Downtown Farmers Market*

*3rd Ave and 3rd St, Ocala*

#### **Master The Possibilities Series:**

*Annuals and Perennials*

July 14, 2017 10:00—11:30 a.m.

*On Top Of The World*

*8415 SW 80th Street, Ocala*

#### **Forest Library**

*Companion Planting*

July 22, 2017 10:30—11:30 a.m.

*Forest Public Library*

*905 S HWY 314A*

*Ocklawaha, FL 32179*

#### **Freedom Library**

*Butterfly Gardening*

April 14, 2017

12:00—1:00 p.m.

*Freedom Public Library*

*5870 SW 95th St, Ocala*

## BUZZZZ IN THE GARDEN

### **Create a Fairy Garden For (Much) Less**

*By Diane Otis, Master Gardener*

The fairy garden craze has swept America. An industry has developed creating containers, plants and miniature accessories to sell to fairy gardeners. Locally many traditional items for fairy gardens can be found at craft shop and even some specialty plant stores such as the Peacock Cottage. These tiny items are adorable but can add up quickly and become very expensive. Why not use items you have on hand instead? You'll save money, and if you make your garden with the assistance of a child, you'll teach creative thinking.



For inspiration, try free resources. The Marion County Library has a series of books that depict stunning fairy houses created with natural materials. Each title begins “Fairy Houses...” and the authors are Tracy and Barry Kane. Or do an internet search for “Fairy Gardens” and see what photos and articles pop up. My favorite source for design research is Pinterest.com.

Next—scavenge, repurpose. Fairy gardens have been housed in old desk drawers, craft-pumpkins, and wheelbarrows. Need a base to attach sticks and leaves to make a fairy house? How about using a bottle, jar or plastic yogurt container? Need stepping stones? How about some pennies or buttons? If you want to light up your fairy garden at night, use your Christmas mini-lights.

Need plants? Your lawn may have adorable small-scale weeds. You may find tiny ferns growing in cracks on your patio. Ask friends to search their properties. Many plants can be divided or grown from cuttings. Just be sure the plants you use have similar light and water requirements. There is only one thing not to take from nature--moss. Moss communities are fragile and can take decades to grow. Use commercially-grown moss or a substitute.

By now, you've discovered this is more fun than buying plastic gnomes or bridges. You're looking at the world in a new way, assessing the fairy garden potential of wire hangers and twigs. You'll save money and keep items out of a landfill. Feel proud--your garden is unique.

If you'd like to learn about more traditional gardening, Master Gardener Pat Burns will be speaking on Summer Gardening on July 18th from 10:30 am to noon at Brenda Williams Health Center, 1714 SW 17th St. (near Target and the bowling alley.)

# Good Bug or Bad Bug

By Amanda Marek, Florida Friendly Landscape Coordinator



Honey Bee by Maxine Hunter



Pierid Butterfly, by Maxine Hunter



Aphids, <http://entnemdept.ufl.edu>



Big-eyed bug, [entnemdept.ufl.edu](http://entnemdept.ufl.edu)

It is essential to keep pollinators and good bugs in our landscape. The Marion County Extension Service can help you decipher between what is friend and what is foe. For pollinators in particular you're going to want to provide both food plants and caterpillar host plants. Food plants (also called nectar plants) provide pollen, nectar, and sometimes berries for pollinators. Bees and small butterflies benefit the most from open-faced flowers like our native blanket flowers, beach sunflowers, asters, and coreopsis. Large butterflies and hummingbirds have specially designed tongues that allow them to eat from long tubular or trumpet-shaped blooms like coral honeysuckle, crossvine, or salvias. Some plants such as golden dewdrop or hollies provide both flower nectar and berries for multiple pollinators to enjoy.

Host plants are sometimes overlooked but without them no pollinator garden is complete. Host plants provide food for caterpillars to eat and places for pollinators to live and reproduce. These can also be very specific to one type of pollinating insect. Monarch butterfly caterpillars, for instance, eat only milkweeds. Passionflower vine is also host specific for our Gulf fritillary butterfly. But please be aware! Caterpillars may decimate their host plants down to bare stems which can be unsightly. Do not use insecticides. These plants are serving their purpose and will almost always recover quickly from their sacrifice and start regrowing leaves for the next generation of caterpillars.

The list of plants for pollinators is extensive but choose plants that are best suited for your soil, light and water conditions, and planting zone (in Marion County we're in zone 9a). The Extension Service can help with soil testing and plant recommendations. Also, be sure to read the tags to avoid purchasing any plants treated with insecticides such as neonicotinoids which are toxic to the pollinators we want to protect. Use tools such as the Florida-Friendly Landscaping™ Guide to Plant Selection & Landscape Design booklet (available at your local Extension Office) or the online *FloridaYards.org* plant database to make a list of the right plants for your space.

So, now you have a thriving pollinator garden and you can't keep track of all the different birds and butterflies you've seen visit. Then tragedy strikes. Suddenly you have caterpillars eating your beautiful plants down to bare stems! There's tiny yellow insects completely covering some leaves and a myriad of alien-like bugs you've never seen before. Your immediate instinct (after panic) might be to grab the closest insecticide you can find and start spraying. Stop! Put the insecticide down and let's figure out if you have good bugs or bad bugs. Some bad bugs such as aphids are food for lady bugs and other beneficial insects, like parasitic wasps, that help keep pests down. Ask your Marion County Extension Office for help identifying what insects you have and if the use of pesticides is needed. Sometimes you may be able to use less harmful products such as neem oil or insecticidal soap to keep the balance of good bugs and bad bugs in your garden.

# Central Florida Gardening Calendar:

## What to do in July

### What to Plant

**Annuals/Bedding plants:** Summer annuals to plant now include celosia, coleus, torenia, and ornamental pepper. See *Annuals*: [http://edis.ifas.ufl.edu/topic\\_annual\\_landscape\\_plants](http://edis.ifas.ufl.edu/topic_annual_landscape_plants)

**Bulbs:** Butterfly lily and gladiolus can be planted during the middle of summer. See *Bulbs for Florida*: [http://edis.ifas.ufl.edu/topic\\_bulbous\\_flowers](http://edis.ifas.ufl.edu/topic_bulbous_flowers)

**Herbs:** While summer is too hot to start herbs from seeds, many do well if started from small plants. See *Herbs*: [http://edis.ifas.ufl.edu/topic\\_herbs](http://edis.ifas.ufl.edu/topic_herbs)

**Palms:** Continue planting palms while the rainy season is in full swing. Support large palms with braces for 6–8 months after planting. Nails should not be driven directly into a palm trunk. See *Palms*: [http://edis.ifas.ufl.edu/topic\\_palms](http://edis.ifas.ufl.edu/topic_palms)

**Vegetables:** Start your Halloween pumpkins this month, but watch out for mildew diseases. Okra and Southern peas can also be planted. See *Vegetable Gardening in Florida*: [http://edis.ifas.ufl.edu/topic\\_vegetable\\_gardening](http://edis.ifas.ufl.edu/topic_vegetable_gardening)

### What to Do

**Trees:** Prepare for hurricane season by checking trees for damaged or weak branches and pruning if needed. Hire an ISA-certified arborist. See *International Society of Arboriculture*: <http://isa-arbor.com/> and *Pruning Landscape Trees and Shrubs*: [http://edis.ifas.ufl.edu/topic\\_tree\\_pruning](http://edis.ifas.ufl.edu/topic_tree_pruning)

**Lawns:** Determine the cause of any lawn problems before taking action. If an insect is the culprit, treat only the affected area. Rule out disease or sprinkler malfunction. See *Garden Pest Insects*: [http://edis.ifas.ufl.edu/topic\\_garden\\_pest\\_insects](http://edis.ifas.ufl.edu/topic_garden_pest_insects)

**Fertilizer Bans:** Some municipalities in central Florida prohibit the application of fertilizer to lawns and/or landscape plants during the summer rainy season (June–September). See if such an ordinance exists in your area.

**Vegetable garden:** Use summer heat to solarize the vegetable garden for fall planting. It takes 4–6 weeks to kill weeds, disease, and nematodes, so start now. See *Soil Solarization*: [http://edis.ifas.ufl.edu/topic\\_soil\\_solarization](http://edis.ifas.ufl.edu/topic_soil_solarization)

**Azaleas:** Prune no later than mid-July to protect developing buds for next spring's bloom. See *Azalea*: [http://edis.ifas.ufl.edu/topic\\_azalea](http://edis.ifas.ufl.edu/topic_azalea)

**Irrigation:** Install an inexpensive rain shutoff device to save money by overriding an irrigation system when it rains. If one is already installed, check that it is operating properly. See *Landscape Irrigation*: [http://edis.ifas.ufl.edu/topic\\_landscape\\_irrigation](http://edis.ifas.ufl.edu/topic_landscape_irrigation)

**Pests on ornamental plants:** Inspect the leaves of azaleas and ornamental plants for small white dots that may indicate lace bugs at work. Spray forcefully with water to help control this pest. See *Landscape Pest Management*: [http://edis.ifas.ufl.edu/topic\\_landscape\\_pests](http://edis.ifas.ufl.edu/topic_landscape_pests) and *Landscape Lace Bug Pests*: [http://edis.ifas.ufl.edu/topic\\_landscape\\_lace\\_bug\\_pests](http://edis.ifas.ufl.edu/topic_landscape_lace_bug_pests)

**Citrus:** Check citrus trees for damage to fruit or leaves and take action to minimize the effect of insects and/or disease on developing fruit and the overall health of the tree. See *Home Citrus Culture*: [http://edis.ifas.ufl.edu/topic\\_citrus\\_home\\_citrus\\_culture](http://edis.ifas.ufl.edu/topic_citrus_home_citrus_culture)



### BLANKET FLOWER JULY SPOTLIGHT PLANT

*Gaillardia pulchella* is in the Asteraceae family. This native annual or short-lived perennial grows well in hot, dry areas and is a good ground cover. Flowers can be yellow, orange, red, or bi-colors and typically reseed themselves annually. These flowers are highly attractive to butterflies and pollinators.

**HEIGHT:** 12 to 24 inches, grows in round clumps up 2 to 4 foot wide.

**LIGHT:** Needs full sun for best flowering.

**MOISTURE:** Very drought tolerant once established. Tolerates any soil except very poor, alkaline, or poorly drained.

**PRUNING:** Very little pruning required.

# Central Florida: Edibles to plant in July

<http://gardeningsolutions.ifas.ufl.edu/care/planting/vegetable-gardens-by-season.html#!-1/>

SURVIVES TRANSPLANTING	
TRANSPLANT WITH CARE	
USE SEEDS	Okra, Peas (Southern), Pumpkin



UF/IFAS Marion County Master Gardeners  
presents the 2017

## Vegetable Garden Expo

Saturday, Sept. 9, 2017  
9 a.m. – 1 p.m.

UF/IFAS Marion County Extension  
2232 NE Jacksonville Rd, Ocala  
352-671-8400

Join us for seminars to help you get ready for planting your fall vegetable garden. Stock up on supplies from a variety of vegetable garden vendors selling vegetable seeds and seedlings, containers, soil amendments, potting mix, fruit trees and other related items. Also, enjoy our guided vegetable and herb garden tours.



*These items are available for purchase at the UF/IFAS Extension Marion County. We also have many other items available in our Shop Extension store.*

*The store is open Mon-Fri from 8 a.m.-5 p.m. Please come to see these environmentally-friendly products, as well as many other agricultural-related items.*



## Volunteer Spotlight

Connie Bonbrest has been a Master Gardener since 2012. She is in charge of our Propagation and Greenhouse areas and does a terrific job of managing them. Connie works tirelessly to prepare for our spring and fall plant sales.



“Nothing pleases me more than helping someone with a gardening/plant concern.”

Her favorite part of being a Master Gardener is working with so many other dedicated folks who share a team spirit where everyone has a value and a role. “I believe we serve our community well in part because of this team spirit”.

Connie also says she has personally benefited by increasing her plant knowledge and gaining confidence to pass this knowledge on to others. She has met many wonderful people who will remain lifelong friends. She dreamed and waited many years to be a Master Gardener, and the experience is worth every bit of the wait.