



Master Gardener™

An educational program of the LSU AgCenter

ST. TAMMANY MASTER GARDENER ASSOCIATION

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In the sweetness of friendship let there be laughter. For in the dew of little things, the heart finds its morning and is refreshed.
The Prophet, Kahlil Gibran



Photo by J Blazek

For the latest research-based information on just about anything, visit our Web site:
www.lsuagcenter.com

Thoughts on Honey Bees

Earlier this year a group of master gardeners began a vegetable garden blog in MoM, the weekly email for the St. Tammany Master Gardener Association. Discussions included problems with vegetable and fruit crops, garden pests, and general techniques to increase harvests. During one of these discussions, Jim Bates, Master Gardener and Vegucator, shared these thoughts on honey bee pollinators.

Honey bees need our help. Sadly, although the bee populations' decline has slowed, based on a 2019 survey of hive owners, numbers continue to fall. It is very typical for beekeepers to lose 30 to 40% of their hives every winter, but that's a rabbit hole I won't go down at this time.

As a beekeeper I can offer some of my thoughts on the lack of honey bees in tomato gardens this year. These are my opinions, mixed with some of my experiences and generalized reading efforts on the topic.



Photo by J Blazek

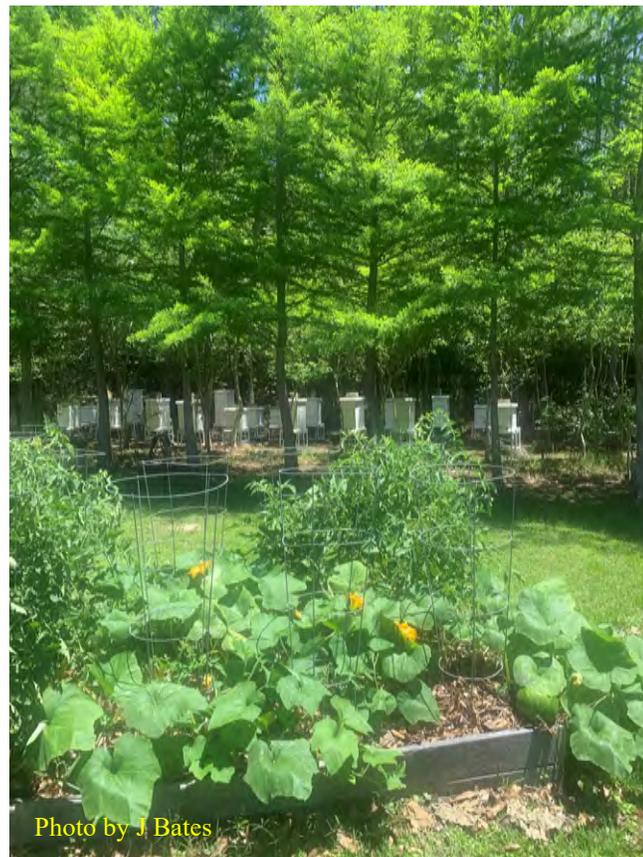


Photo by J Bates

This spring was cooler and dryer than most. This affects honey bees in two ways. First, the cooler weather means more bees stay inside the hive to keep the interior at 90 degrees Fahrenheit. That means fewer bees are foraging outside the hive. Secondly, the cooler weather and lack of rain pushed back the typical early April flowering shrubs and trees. Privet and other major suppliers of nectar and pollen did not bloom until May.

Thoughts on Honey Bees, continued

My vegetable garden has tomatoes, cucumbers, Japanese melons, eggplants, and blueberries, and is less than 30 feet from the entrance of my 26 very active beehives. But I hardly ever see them on my vegetable flowers. I see far more bumble bees than honey bees on these flowers. This might seem strange since each hive has, on average, 50 to 60,000 honeybees. Doing the math: $26 \times 50,000$ equals 1,300,000 honey bees. So why would over a million honey bees fly right through my vegetable garden and go to the privet bushes or the Yukon holly tree (which for some reason still had red berries at the same time it had millions of white tiny flowers this year). The bees do this because shrubs and trees provide enough food resources to support all the hive foragers and the vegetable garden does not. There is an attached article from Dr. Dale Pollet which explains why we should be planting trees and shrubs instead of flower gardens to help the honey bees.



Every morning each hive sends out nectar, water and pollen scouts. They return to the hives with samples and the exact GPS information to navigate back to the necessary supplies, communicating the exact location and the abundance of the source. Honeybees, unlike other pollinators, forage on certain selected plants each day. Today's menu might be privet and that is where the hive, or a large percentage of the hive, will forage that day. A few stragglers may stop by my vegetable garden but more than 99% are headed to the larger source of nectar and pollen that only trees and shrubs can provide this time of year.

Thoughts on Honey Bees, continued

During the heat of late July and August my eggplant blooms will be covered in honey bees as there is no better source of nectar and pollen at that time.

Another 2020 spring observance is that so far this year I have caught only one swarm. In years past I have caught five to ten swarms by the first week of May using the same number of swarm traps. There is just less swarming activity, probably caused by the cooler, dryer spring. Once hives become over-crowded, and enough honey stores are in place, swarming should pick up.



Honey bees also leave their scent on each flower they visit so that other bees won't waste time on a bloom that has been sucked dry. One or two honey bees might visit all your tomato blooms in a few minutes and that's it for the day. Other honey bees will smell the message left behind that this bloom has already been foraged.

Attached to this edition of *The Gardengoer* is the Blooming Seasons of the Highest Nectar Producing Plants In Louisiana from Dr. Dale Pollet's book, Louisiana Honey Plants. Take note how many of these plants are trees, shrubs and woody vines.

Identifying Poison Ivy, Poison Oak, and Poison Sumac

Part Two: Summer

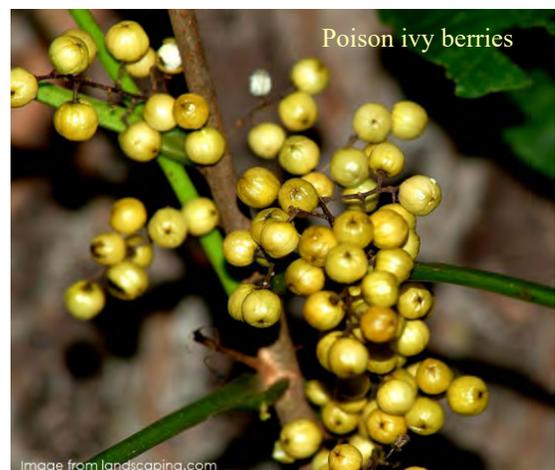


This article, a 2017 Vegucator lecture, will review the appearance of poison ivy, poison oak, and poison sumac in the summer months. These plants change as the seasons progress. The previous issue of *The Gardengoer* covered springtime. The next issue will describe their appearance in autumn and winter.

Poison ivy, poison oak, and poison sumac grow throughout Louisiana. Urushiol, an oil found in all three plants, can cause a severe rash in most humans when it comes in contact with the skin. So it is very important to keep an eye out for these noxious plants as we garden, trim our yards, and hike through our parish.



In summer, poison ivy vines grow larger, up into the trees. As ground cover, it expands into bushes. In summer it also begins to develop small green to greenish-yellow buds, then small white flowers.



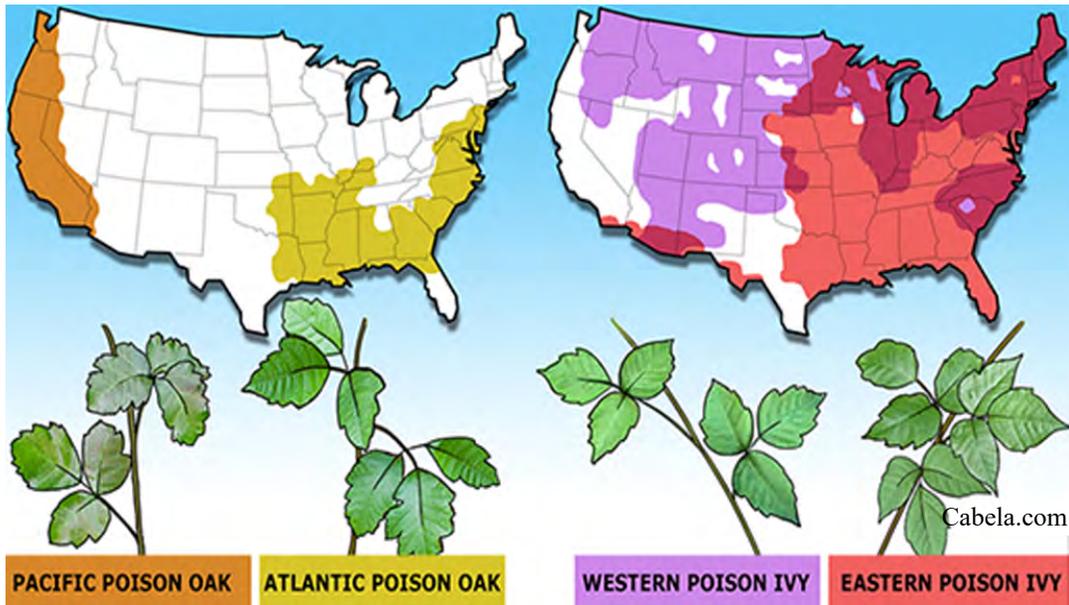
Poison ivy develops white to pale yellow berries in late summer through fall.

Identifying Poison Ivy, Poison Oak, and Poison Sumac

Part Two: Summer, continued



Range of poison ivy and poison oak



Poison oak plants become fuller in summer and, in the early months, have small white flowers. Later in summer, white to tan berries develop.

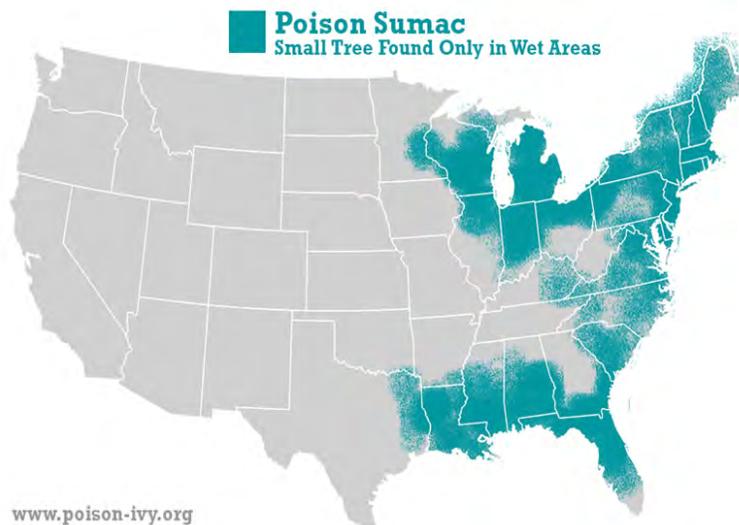


Identifying Poison Ivy, Poison Oak, and Poison Sumac

Part Two: Summer, continued



Range of Poison Sumac



In early summer poison sumac produces small yellow-green flowers in loose hanging clusters emerging from the leaf axils. These flowers later develop into drupes of white berries.



Resources:

- Lsuagcenter.com
- NCBI.nlm.nih.gov
- Healthline.com
- Britannica.com
- Alnature.com
- Teclabsinc.com
- Thepruce.com
- Virginiatech.edu

Jamie Blazek
Master Gardener
Vegucator
Editor, *The Gardengoer*

Planting For Our Community

St. Tammany Master Gardeners Rachel Lambert and Janice Cox-Perkins have teamed up with Covington Presbyterian Church to create two community gardens for the purpose of growing, harvesting and distributing fresh vegetables and flowers to the home bound, hospice patients and organizations, such as, The Northshore Food Bank and Family Promise. The gardens include tomato, cucumber, zucchini, yellow squash, eggplant, watermelon and ornamental flowering plants.



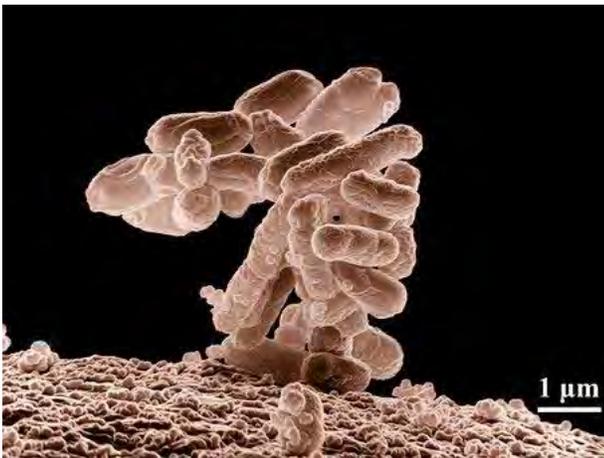
Rachel Lambert
Master Gardener

Life Inside The Compost Pile Part Two



This was a presentation by Paul Andres to the Vegucators on March 4, 2020. His full Powerpoint presentation can be found on the Agcenter classroom computer. Part one of this article on composting can be found in the May-June issue of *The Gardengoer*. Part one discussed what goes into a compost pile and some of the physical responses to these components. Part two covers the living organisms that can be found in compost piles.

The compost pile is a dynamic place involving a balance of chemical components that result in humus, the rich nutrient that feeds and conditions the soil for better plant growth. The other half of this dynamic community is the fauna which includes both micro and macroorganisms. These appear at various times. They function to efficiently break down materials to their simplest forms. The microorganisms include bacteria, fungi, actinomycetes, and molds.



Bacteria contribute the most to the compost pile, both in terms of effort and volume. The bodies of these bacteria contribute a large percentage of the humus pile volume.

Bacteria are nutritionally diverse; they consume almost any hydrocarbon. Some bacteria are even known to consume crude oils. Although they have their limits. Bacteria oxidize the carbon, rearrange the hydrocarbon molecules, and produce heat. Their own cells add nitrogen nutrients that contributes to plant growth.

However, bacteria are vulnerable to environmental changes in the pile, including heat, moisture, pH and oxygen. If a compost pile goes “dead” or cold before the materials have decomposed, one of these environmental conditions might be out of balance.

Actinomycetes, once classified as a higher form of bacteria, now have a ranking of their own. They are responsible for the “earthy” smell the pile produces. Actinomycetes function in the mesophilic, or medium temperature range (about 70° F to 113° F), usually toward the end of the decomposition cycle. These decompose the more resistant materials such as lignin, cellulose, starches and proteins.



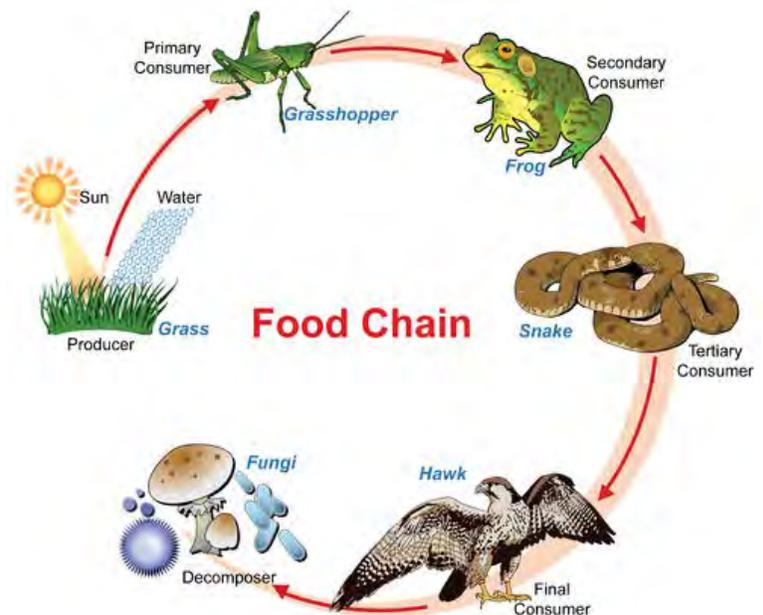
Life Inside The Compost Pile Part Two, continued



Fungi and molds are primitive singular and multi-cellular plant forms. They prefer a cooler temperature and are most active in the later stages of the compost pile. They may appear as various colored threads or clumps of gelatinous materials. These are also active on the materials that are more resistant to being broken down.

Macroorganisms are the larger-sized workers of the compost pile. These desired members perform specific tasks at specific times and then are gone. These include ants, millipedes, centipedes, sow bugs, springtails, flies, beetles, snails, slugs, spiders and earthworms.

Energy is conserved in nature and flows through the food chains of multiple ecosystems. Food producers (plants) are consumed by various primary consumers. Primary consumers are consumed by secondary, tertiary and final consumers. These food chains may be connected via various food webs which show the multiple routes of nutrients and energy from producer to consumer, usually in one direction. The organisms in the compost pile not only function within a food web, but also assist in returning energy and nutrients back to the producers.



Animal life in a compost pile is essential. Knowing the right and wrong life will help keep a compost healthy and productive. Balance is key: don't overdo anything.



Ants are busy workers that feed on fungi, seeds and other insects. They move organisms into and around the pile. Ants are usually active in the early stages of the pile, helping to physically breakdown the new material. They are also active toward the end of the pile when fungi need to be cleaned up.

Life Inside The Compost Pile

Part Two, continued



Millipedes are useful in breaking down new materials into smaller particles so bacteria have a greater surface area to start working. Millipedes consume decaying vegetation.



Centipedes are tertiary consumers. They consume soil invertebrates such as insects and spiders. These are fast moving predators that live in the upper layers of the compost pile. They may bite and may have a poisonous venom, but a reaction is rare.

Sow bugs are first-level consumers. They are slow-moving crustaceans with gills on their underneath. They feed on decaying woody materials. They require ample moisture for the gills.



Springtails are wingless insects whose job it is to chew down decomposing plant materials, as well as grains, bacteria, fungi, algae, and pollen. These also require a high water content. They will either move to the moister part of the pile or die out.

Flies are always involved with compost. The problem is too many of these and they become pests. Flies are essential for transporting bacteria, and feeding on decomposing organic materials. In order to keep the fly population under control, you must keep the fresh materials well buried in the pile. You may need to increase the carbon-to-nitrogen ratio so the temperature stays higher.



Life Inside The Compost Pile

Part Two, continued



Beetles are active in all phases of their life cycle. As adults they consume ants, slugs and other small animals. As grub they consume decaying organic materials.

Snails and slugs feed on living plant materials, and will attack decaying organic material. Watch for these at the end of the decomposition cycle because you do not want to introduce them to the garden. If they are present, wait a few additional weeks before using the compost.



Spiders are third level consumers and are very useful in controlling insects and small garden pests.

Earthworms are important physical decomposers. They ingest organic materials that react with their internal juices, which are rich in hormones, enzymes, and fermenting substances. They produce castings that are rich in nitrogen, calcium, magnesium, and phosphorus. Many gardeners focus on vermiculture, or worm farming, by growing worms strictly for their castings.



Other animals are occasionally found in compost piles, such as, snakes, wasps, and rats. These are not a part of the intended community. Usually this means that the pile is not properly maintained. It may have red meat products. It may be too dry. Or there may be too little “green” or nitrogen. A healthy compost pile will not invite these undesirable critters.

So far this article has covered the chemical side of composting (part one), and some of the animal life (part two) in the compost pile. What about the human impact on the composting process?

Life Inside The Compost Pile

Part Two, continued



The toughest decision is knowing when to STOP adding to the compost pile. As the pile decomposes, it reduces in size by almost two-thirds. When I do decide to quit adding, the pile will continue to compress. I am so tempted to add more to get it back to a fuller level. I now know that I cannot start taking from the pile for four or five weeks after I last added material. This is the reason I use a three bin setup. I can move onto the next pile and let the active pile mature.

Once I see that most materials have decomposed, I start trying to recognize some of the materials. I wait until I can see very little of anything recognizable. The humus must be dark in color and crumbly with a pleasant earthy smell. It must be the same temperature inside and outside, indicating that all bacterial action is completed. If you add immature humus to your garden, it may draw from the soil rather than supplement it. I also don't want to see any organisms, other than earthworms, active in the pile. Then I wait three or four weeks to let everything settle. During this time I keep the humus moist to maintain the microbiotic community within the pile. The pile is should be mixed regularly. Otherwise, it will cure from the core out and the extremities will not be as mature. When I am ready to start taking from the pile, I move the less-mature top and sides to the next active pile exposing the most mature humus. The less-mature materials carry the bacteria to the next active pile. With this system I can usually get two or three compost piles per year.



Editor's note: Paul has graciously offered his email for anyone who has further questions or needs assistance in trouble-shooting their composting problems. He can be reached at pkandres@bellsouth.net

REFERENCES:

All images obtained from Yahoo search
<https://www.lsuagcenter.com>
The Rodale Book of Composting
ISBN0-87857-991-5
Composting for the Homeowner
Illinois Extension
<http://cwmi.css.cornell.edu/chapter1.pdf>

Paul Andres
Master Gardener
Vegucator

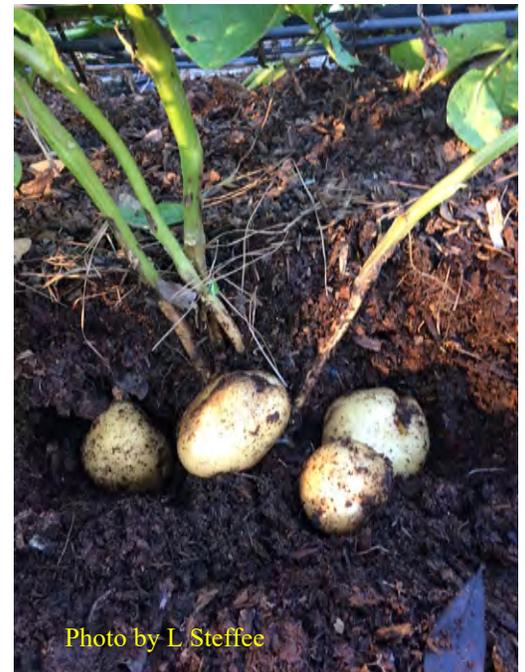
Growing Potatoes in Southeast Louisiana



Ever tried growing potatoes in Southeast Louisiana during April showers and May monsoons? Laura Steffee, Master Gardener, has some great tips on a successful harvest. She shared these recently in the vegetable garden blog in MoM, the weekly email for the St. Tammany Master Gardener Association.



I started harvesting potatoes on May 7 after several storms and a long rainy spell left the plants looking as if they were on their way out. If the garden had been drier, I would have left the potatoes in ground for several more weeks. Generally, to maximize yield, you should wait until the foliage is completely dried before pulling the tubers out of the ground.



However, because the ground stayed continuously wet for several days, I did not want the potatoes to rot in ground. So I pulled the plants up while foliage was green and harvested potatoes. Then I covered the roots back up. After covering the roots, I watered them lightly. If the foliage is green, the plants will continue to produce potatoes.

Had I needed the bed right away, I would have just pulled the plants out and put them on the compost pile.

My harvest on May 7 produced 70 pounds of potatoes from about 30 plants. The Yukon Gold potatoes were in better condition than most of the Pontiac Red. I think they handled the wet ground better. Next year I will be certain not to let the Pontiac Red stay in wet ground when the foliage begins to show damage.



Growing Potatoes in Southeast Louisiana, continued



Photo by L Steffee

On May 21, I pulled the mostly dead plants and got another small harvest by waiting the additional two weeks instead of pulling everything after the first harvest.

After pulling the potatoes from the ground, let them dry before placing in storage. They keep best if the dirt is left on them and they are dried thoroughly and immediately after digging. Although sweet potatoes can be left outside in the sun for a few hours after digging, it is important to bring “Irish” potatoes into the shade immediately. Potato tubers exposed to sunlight produce a toxic substance known as solanine. This is what causes a greenish color on parts of a potato exposed to light. I put the potatoes in the shade on the porch in front of a fan until they are thoroughly dry. Then I put them in a cardboard box covered with paper and store them in an air conditioned room in the house. I miss my northern root cellar!

I grow everything in raised beds where the soil is 100% compost and is very friable. I can dig the potatoes by hand to minimize damage. I prepare my beds in the spring by adding four to six inches of compost because I lose about that much depth every year as it breaks down.



Photo by L Steffee



Photo by L Steffee

← Thirty minutes after my second potato harvest I immediately planted sweet potatoes in the same bed. No additional fertilizer was added to the bed for the sweet potatoes. The edible portion of both regular potatoes and sweet potatoes are the tubers. The soil potassium and phosphorus levels are more important for both crops than is nitrogen.

Growing Potatoes in Southeast Louisiana, continued



Soil tests of my compost show it is extremely high in phosphorus and potassium. Occasionally I will give the sweet potatoes a nitrogen boost by adding some blood meal after the cuttings are established. Oh, I almost forgot. This photo of the red potatoes with the potato fork are from a plant growing in an ant hill. I have heard several people say that fire ants eat their potatoes. I have never found this to be the case. If you look closely at the photo you will see little ants crawling all over those potatoes that I just dug. However... I do try to make sure I use a fork instead of my hands when digging the potatoes near an ant hill!



Photo by L. Steffee



PHOTO BY DR. JOHN MEADE, RUTGERS UNIV.
VIA ALABAMA EXTENSION

Potato plants can also produce a green fruit that looks a lot like tomatoes. All potatoes can produce these but Yukon Gold tend to produce more than most other varieties. These are not edible as they contain relatively large amounts of the poisonous alkaloid, solanine. The reason they look like tomatoes is that tomatoes and potatoes are closely related. They are both in the genus *Solanum*, in the nightshade family Solanaceae (as are peppers).

Tomato and potato plants differ by which part we consume. The only edible portion of a tomato plant is the fruit. The only edible portion of the potato plant is the tuber. The rest of both plants contain the toxin solanine, with the heaviest concentrations in the leaves and stems. Solanine is thought to be a protective mechanism that discourages animals from munching on the plants. Solanine also contributes to the protection of the plants by discouraging phytopathogenic fungi infestation.

Growing Potatoes in Southeast Louisiana, continued



The only edible portion of a potato plant is the underground tuber where the plant stores food and water. Leaves, stems, shoots and the tomato-like fruits are all high in solanine, an alkaloid saponin. Potato tubers are safe to eat as long as they are not exposed to sunlight. When exposed to sunlight potato tubers begin to produce solanine which turns them green. This also appears to be a natural defense mechanism to prevent uncovered tubers from being eaten. Green potatoes are very toxic even in small quantities.



So, in conclusion, you can eat the fruit of tomato plants. But do not eat the fruit of potato plants because even though they look like green tomatoes they are full of the toxin solanine. And don't eat green potatoes. Make certain when you are growing potatoes that the tubers are well covered with soil or mulch. Get them out of the sun immediately after harvesting to avoid solanine production.

HISTORICAL NOTE:

Both tomatoes and peppers were originally domesticated in the Andes. Potatoes have been cultivated for over 7000 years. Native Americans were growing potatoes long before Europeans “discovered“ America. So, although some potatoes are often referred to as “Irish” potatoes, they were being produced in South and North America long before Sir Walter Raleigh brought them to Ireland around the year 1590.

References:

“Tomato-like Fruit on Potato Plants“, Richard Jauron, Department of Horticulture, hortnews.extension.iastate.edu.

“Irish Potatoes“, LSU AgCenter Publication 1903, www.lsuagcenter.com

Laura Steffee
Master Gardener
Vegucator

What Can I Plant Right Now?

South Louisiana (Zone 9a)

Garden Crops for June through December

A frequent question at the master gardener advice table is "What can I plant right now?" Many new gardeners are not interested in perfection in garden crop rotation. They just want to hear that they can immediately plant something that they like to eat. In response, I collected a few of my favorite resources and created the following list of vegetables that can be planted in each month from June to December.

MONTH	DATE	SOW SEEDS		TRANSPLANTS
		<i>Shady spot or Indoors</i>	<i>In Garden</i>	<i>To Garden</i>
JUNE	01-14		Collard Greens Cucumbers Eggplant Melon Okra Onion Southern Peas Peppers Potatoes (Main) Pumpkin (July better) Squash-Summer Sweet Potatoes Watermelon	
	15-30		Cucumbers Melon Okra Southern Peas Peppers Potatoes (Main) Pumpkin (July better) Squash-Summer Sweet Potatoes Watermelon Tomatoes (Heat Set) Collard Greens	
JULY	All		Cucumbers Melon Okra Southern Peas Peppers Pumpkin (mid-July best) Squash-Summer Tomatoes (Large) Watermelon	Tomatoes (Heat Set)—mid to late July

What Can I Plant Right Now, continued

AUGUST	01-14	Broccoli Brussels Sprouts Cabbage Cauliflower Kale Leek		
	15-31		Head Lettuce BUG PRESSURE IS HIGH – wait until September for most vegetables	
SEPTEMBER	01-15	Leaf Lettuce Spinach	Beans – Bush & snap Beet Broccoli Brussels Sprouts Carrot Cauliflower Cucumbers Garlic Kale Leek Parsnip Potato – Irish Swiss Chard	
	15-30		Carrot Garlic Leaf Lettuce Radish Spinach	Broccoli Brussels Sprouts Cabbage Cauliflower Kale Leek
OCTOBER	01-14		Carrot Garlic Leaf Lettuce Radish Spinach	
	15-31		Garlic Spinach	
NOVEMBER	All		Garlic	
DECEMBER	All		Garlic Onion	
	26	Peppers (indoors under LED light for gentle warmth)		

References:

LSU AgCenter, Horticulture Hints, Summer 2014, LSU AgCenter website

LSU AgCenter, Horticulture Hints, Summer 2017, LSU AgCenter website

Old Farmer's Almanac Personalized Planting Recommendation, emails, 2018-2019

Personal experience, 2009-present

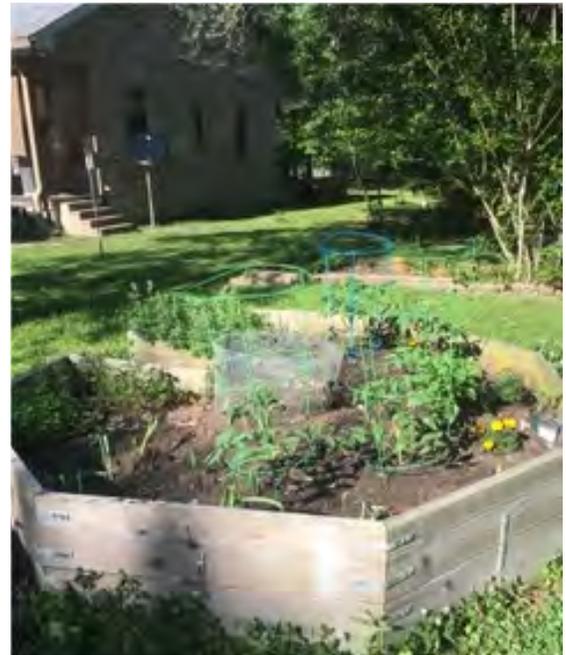
Janet Schexnayder
Master Gardener
Slidell Farmers Market,
Chair

Bokashi Composting

For the past two years I have been experimenting with Bokashi composting (anaerobically fermenting organic matter) versus the traditional aerobic composting process. My interest in this process began after my husband built a keyhole garden with a compost basket in the center.

Because the kitchen scraps added to the keyhole compost were slow to breakdown, I began investigating compost accelerators. I discovered a book on Bokashi by Adam Footer, a permaculture designer. His book focuses on soil building, food forestry, cover crops, water conservation and harvesting. Bokashi is Japanese for "fermented organic matter".

I now have three Bokashi buckets into which I add all kitchen scraps (including dairy and meat). After adding the kitchen scraps, I top that with a cup of the Bokashi bran which is inoculated with essential microorganisms. As the kitchen scraps decompose, a liquid is created. The buckets have a spigot at the bottom that drains the liquid. The bucket is usually drained weekly as I add fresh scraps. This liquid is beneficial and nutrient rich. Due to a low pH, the liquid should be diluted with water prior to adding it to the garden. No liquid is added to the bucket. It all comes from fermentation of the kitchen scraps. I am continuing to experiment to determine soil pH before and after using this composting method.



After the food scraps are fermented in the bucket for three weeks, I bury the Bokashi "cake" in my garden areas or add it to the compost bins located in my keyhole garden. I also add it to my hugelkulture garden. These areas are now teeming with earthworms. I have found it is less time consuming than managing the traditional aerobic composting method.



Bokashi Composting, Continued

My goal is to return nutrients to my soil naturally and thus eliminate the need for commercial fertilizers.

Simplest definition of Bokashi Composting according to Adam Footer: "Bokashi composting at its simplest is using microorganisms to anaerobically ferment organic matter in an acidic environment so it can then be rapidly assimilated into the soil by the soil biota. Bokashi composting is really a fermentation process not a composting process."*

* Footer, A. Bokashi Composting: Scraps to Soil in Weeks (1994) p. 7.

Benefits of Bokashi

- You can compost all types of food waste, including meat, cheese, dairy, and bread.
- You do not have to worry about mixing greens and browns in a specific ratio.
- No pests, such as animals and insects, can get to it.
- No putrid odors (only when you open the lid).
- Minimal greenhouse gasses are produced. (This is an area where more research is needed.)
- No loss of nutrients to the ground or the atmosphere.
- Beneficial microorganisms are added to the soil.
- Waste does not have to be turned regularly.
- Decomposition is much faster than traditional aerobic composting.

References:

Footer, A., Bokashi Composting: Scraps to Soil in Weeks, New Society Publishers.

[Higa, T. and Parr, JF., Bokashi Composting from For a Sustainable Agriculture and Environment, PDF \(1994\).](#)

Junie Louise Dill
Master Gardener

STMGA Brag Board



AJ Bailey



AJ Bailey



Jamie Blazek



Ron Roland



Linda Zitzman



Linda Zitzman



Linda Zitzman

Recommended Reading

Donna Howland, Master Gardener, recommends an article by Science-X on the early history of plant evolution. Click on the link or copy and paste it to your internet browser:



"New Ancient Plant Captures A Snapshot of Evolution"

<https://phys.org/news/2020-05-ancient-captures-snapshot-evolution.html>

Virtual Tour: Paul and Susie's Gardens

Susie and I would like to welcome you our home gardens on a virtual tour. As you arrive you are greeted by the seasonal mailbox garden, Susie's personal charge which she changes twice a year. She grows mostly ornamental plants, but does mix in herbs and vegetables. This welcoming garden sets the tone by offering a changing selection of useful and attractive plants that often features Louisiana Super Plants. May saw the removal of viola (*Viola* spp.) and foxglove (*Digitalis purpurea*) plants, and the addition of angelonia (*Angelonia angustifolia*), penta (*Pentas lanceolata*) and several types of basil (*Ocimum* spp.). Cool weather parsley is now bolting but we're holding off replacing it in case the swallowtail butterflies are nearby.

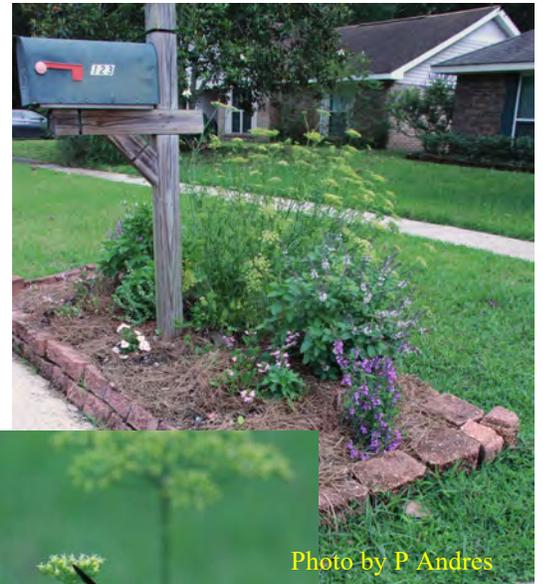


Photo by P Andres



Photo by P Andres



Photo by P Andres

When we moved into this house there were three crape myrtles lining the walk. We have surrounded these trees with a garden and introduced several favorite plants over the years. White shrimp plants (*Justicia betonica*) were obtained from Kathleen Guidry several years ago.

Just last year Susan L'Hoste shared two more shrimp plants, a solid and a variegated coral (*Justicia brandageana*) which are just taking root. We expect all of these to become anchor perennials. I also added an orange jacobinia (*Justicia chrysostephana*) obtained from Barbara Moore to this garden. This is its second season and it has become a bright and robust addition. In this area also are Philippine violets (*Barleria cristata*), milkweed (*Asclepias syriaca*) for the monarchs, and lantana (*Lantana camara*) and red firespike (*Odontonema cuspidatum*) for other pollinators.



Lantana
Photo P. Andres

Virtual Tour: Paul and Susie's Gardens, continued

Another plant that is fast becoming one of our favorites for pollinators is the vitex bush (*Vitex agnus-castus*). It is sometimes called the Texas Lilac. If you like watching pollinators, you will see more on this one bush than any other, except maybe the African Blue Basil which has a similar color bloom.



Vitex Bush
Photo P. Andres

Several of our gardens are outlined with paving brick. Over the years these have settled out of line, so we took advantage of these weeks of sheltering-in-place to spruce up the shelter a bit. We did extensive weeding and bricking, thinning, mulching, and pruning to all the gardens. This exercise has improved the Shi Shi Gashira we have added along the front of our house, although we are still fighting the powdery mildew. While redoing these gardens Susie transplanted some dianthus from the mailbox garden with good results.



Reworking a front garden
Photo P. Andres



Dianthus flowers

This is one of the few areas where it is sunny, so we moved an esperenza (*Tecoma stans*) bush there so it could flower.



Esperenza
Photo P. Andres

On one side of the driveway are amaryllis and more milkweed. This year we have not seen many caterpillars in this garden, but we know the milkweed is their preferred plant.



Monarch Egg on Leaf
Photo P. Andres



Monarch Caterpillar
Photo P. Andres



Monarch & Chrysalis
Photo S. Andres

Virtual Tour: Paul and Susie's Gardens, continued

Across the driveway is the kitchen garden. We have a few herbs: thyme, spearmint, basil, rosemary, and garlic chives. We have some vegetables: tomatoes, sweet peppers, and cucumbers. Ornamentals are always included in a mix, so we have passion vines (*Passiflora caerulea*), sweet peas (*Lathyrus odoratus*), daylilies (*Hemerocallis spp.*), and an assortment of wildflowers. This makes for a pleasant view from our kitchen, and easy access when needed.



The back patio garden was also reworked over the last few weeks. It contains cast iron plants, orange jacobinia, impatiens, a potted banana tree, a yesterday-today-and tomorrow bush (*Brunfelsia*). The red fire spike (*Odontonema strictum*) is a perennial that is very tolerant throughout the hot and dry periods, producing a 12" to 18" red spike in the fall of the year, just in time for the autumnal pollinators. We also have several night blooming cereus that sometimes have as many as 20 blooms in one grouping.



A garden in the center of our yard surrounds a magnolia tree. This garden has been the recipient of many of our new favorites, including a yellow hibiscus (*Hibiscus brackenridgei*), a dark red crape myrtle (*Lagerstroemia indica*), a white penta plant (*Pentas lanceolata*), spiderwort plants (*Tradescantia spp.*), four-o'clock plants (*Mirabilis jalapa*), and poke berry plants (*Phytolacca americana*). Susie has added some caladium bulbs (*Caladium bicolor*) here (and in other gardens) to add color throughout the summer.

Virtual Tour: Paul and Susie's Gardens, continued

Along the back and side fences are the azalea bushes (*Rhododendron spp.*), hiding our compost bin. There are a few sweet gum trees (*Liquidambar styraciflua*) that have agreed to hold some of our hanging baskets and display other potted plants. We converted an old firepit into a planter. A variety of ferns and jacobinia are here along with an hamelia fire bush (*Hamelia patens*), oak leaf hydrangea (*Hydrangea quercifolia*), ligustrum (*Farfugium japonicum*), and split leaf philodendron (*Philodendron selloum*).



Ferns & Cereus Hanging Baskets
Photo P. Andres



Firepit Planter & Jacobinia
Photo P. Andres



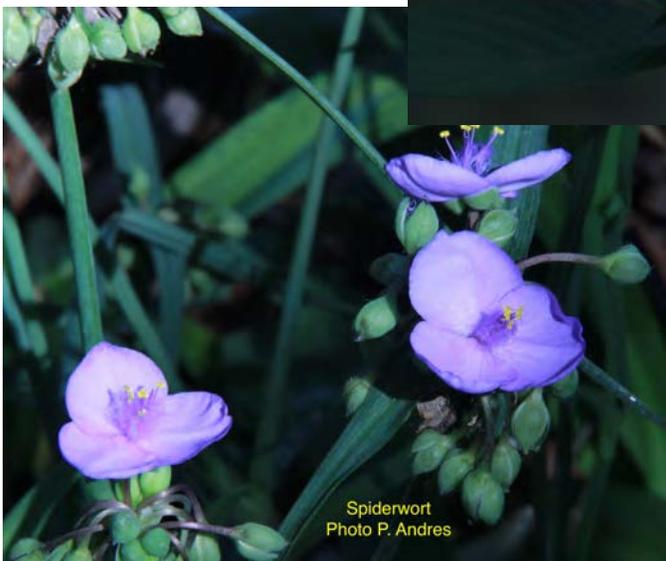
Oakleaf Hydrangia, & Hanging baskets
Photo P. Andres



Hibiscus
Photo P. Andres



White Penta
Photo P. Andres



Spiderwort
Photo P. Andres



Maranta arundinacea
Photo P. Andres

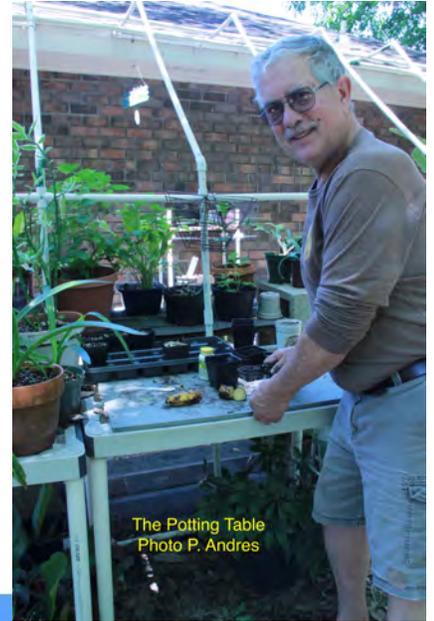
Virtual Tour: Paul and Susie's Gardens, continued

The greenhouse in the back yard is my playpen... my escape. I can try all sorts of gardening procedures and control the environment to a certain degree. I love propagating plants. This is where I experiment on different cultivars and methods. The compost pile is within steps, so I have most materials readily available.



Greenhouse
Photo P. Andres

As much as I enjoy many aspects of the gardening scene, I especially enjoy sharing what I have learned. For the past two years Susie and I have hosted a fall propagation workshop here at our home. We share methods



The Potting Table
Photo P. Andres

that have served us over the years, and many of the plants that we have enjoyed. We plan on doing this again this year if the current health conditions will allow us to do so.

I will end this virtual tour on a stroll to the neighborhood pond. This is a very relaxing vista where many types of local flora and fauna are abundant.



Hawk
Photo P. Andres



Dragonfly
Photo P. Andres



Spider
Photo P. Andres



Neighborhood Pond
Photo P. Andres



Unknown as of yet

Bye! Y'all come back!

Paul Andres
Master Gardener
Vegucator

The Aphid, The Ant, The Wasp, and The Mummy

In the mornings, I pause to enjoy the beauty of my ornamental, vegetable and herb gardens. Then I stoop to confront those who would dare compromise my artistry. Aphids, mealy bugs, scales and leaf-footed bugs are the insect visitors I see most often. Aphids are more numerous and are not intimidated by my presence. They don't flee or rush to hide at my approach.



This ant is inspecting another honey dew producer, a mealy bug. This is the first time I've seen a mealy bug in an ant's aphid farm. Ants will also farm large populations of mealy bugs for their honey dew production. It's not just large red ants that are farmers. I have small black ants farming aphids on my eggplant leaves.

I have come to know the intimate details of the aphid's varied reproductive life. Its relationship with ants, parasitic wasps and mummies has been revealed as well. I now know when to intervene to protect my plants and vegetables. And I know what to use.

I don't need to do anything when the plant is healthy, and the infestation is not severe. But I constantly monitor the situation with control mechanisms at the ready. In the past, I used a Rip Van Winkle approach and waited three or four weeks before checking my plants closely. Since becoming a master gardener I now check at least every two days. I don't wait for a problem to get out of control before attempting a remedy.

APHIDS – the pest

An aphid is a small, soft-bodied insect that inserts its piercing sucking mouth part directly into the plant's vascular phloem and removes the sugar-rich sap. The sap flows from the leaves where it is produced, to the other parts of the plant where the nutrients are needed. Aphids deprive the plant of nutrients while providing food for both itself and some good friends, the ants. More on this aspect later.

Deprived of its nutrients, the plant will have less vigor. This loss will seldom kill a mature plant. The plant can appear water-stressed. The leaves may turn yellow, curl and some may fall off depending on the number of feeding aphids.

A flying aphid will land, deposit several wingless young, and then move on to colonize another plant. Most are female and reproduce asexually (parthenogenesis). Each offspring is an exact genetic duplicate of the mother. These nymphs are born alive and molt four times before becoming adults.

The Aphid, The Ant, The Wasp, and The Mummy, continued

Each female can produce 60 or more live offspring without a male. Females reach sexual maturity in just one week. Then, after a 30 day lifespan, they die of old age or exhaustion. In just a few weeks, less than a dozen colonizers can produce thousands of new individuals on a single plant. It can seem like the population has exploded overnight.

Males are present and sexual reproduction does occur. If late in the year, the eggs will survive the winter enabling the species to continue their circle of life in the spring. Some species only produce males during the fall months. But the asexual method, without a male partner, will produce much larger numbers of offspring that increase their numbers at an alarming rate.

Twin tail pipes (cornicles) occur on each side the aphid's back end. They are a distinguishing characteristic. Defensive chemicals are emitted through them. One of the chemicals is a waxy substance that gums up a predator's mouth. They also release scents (pheromones). One pheromone alerts others that a predator is attacking. Some cornicles can be as small as a nub, while others are longer and easier to spot.

Aphid colors vary with the species and include green, yellow, orange, brown, gray and black. Several different species can exist on an individual plant at the same time. Some aphids carry viruses, such as, cucumber mosaic, which can infect many of the vegetables listed below. The viruses cause yellow and curled leaves, poorly shaped fruit, and stunted plant growth. Most shrubs and trees will tolerate the aphid challenge without any apparent ill effects. The younger, faster growing plants need lots of nutrients and are more susceptible to attack by a medium to large number of sap-sucking aphids.

Plants affected adversely by aphids include:

Ornamentals

Impatiens
Gladiolus
Petunia phlox
Rudbeckia
Roses
Milkweed

Vegetables

Beans	Broccoli	Cucumbers
Carrots	Cabbage	Melons
Corn	Cauliflower	Pumpkins
Lettuce	Collards	Squash
Mustard	Kale	Zucchini
Peppers	Brussels sprouts	
Spinach		

The Aphid, The Ant, The Wasp, and The Mummy, continued

Biological Control: Aphid Predators

The main aphid predators are parasitic wasps, lady beetle adults and larvae, lacewing larvae, soldier beetles, and syrphid fly larvae. Nearby plantings of mint, fennel, dill, yarrow, and dandelions will help attract lacewings and ladybugs. Plantings of buckwheat, sweet alyssum, dill and coriander are host plants that will attract the parasitic wasp to my garden. For large infestations, the local predators are usually an insufficient control technique.

In this photo there are two larvae preying on the aphids. My Google searches couldn't identify them, so I sent the picture to Will Afton. He forwarded it to an entomologist at LSU. The tail pipes can be seen on the aphid at the lower left and are black. On other species just the tip of the tailpipe is black, and others may have no dark coloring at all. These projections are only present on aphids and are an identifying characteristic. The smaller aphids grouped in front of one of the larva also demonstrate the tail pipes. A mummy is near the lower larva and a few molted exoskeletons are visible. If I have the mouth end correct, the upper larva seems to be about to enjoy an hors d'oeuvre from the buffet.



Photo by A Scott

Ant Management: Containerized baits or ant stakes will eliminate ants without harming the aphids or their natural predators. If I see ants on an aphid colony, I know that their presence increases the sap that is removed by the feeding aphids, thereby increasing the plant's stress. More about ants' involvement coming up.

Cultural Control:

If the number of aphids is small enough, I eliminate by just mashing them between my fingers. Or I remove a few branches and throw them in the garbage, away from the garden, to get rid of a slightly larger number.

To get rid of a heavier infestation, I run a strong water hose over them if I want to try to avoid using chemicals. Most aphids don't have wings and won't run and hide, they are slow walkers, so it is easy to blast them off the plants. I avoid directing the water stream over them, then hitting an adjacent desirable plant to which the aphid might cling. I spray early in the day giving the plants time to dry avoiding the potential for fungal diseases.

To control aphid-borne viruses affecting summer squash, melons and other susceptible vegetables, other people have successfully used silver-colored reflective mulches. They also increase vegetable yield by reflecting additional solar energy up to the leaves. I haven't tried this method, yet.

The Aphid, The Ant, The Wasp, and The Mummy, continued

Chemical Control: Always read the label when using any chemicals in your garden. I don't use anything if the infestation is mild to moderate and the plant is healthy.

Control with insecticides can kill beneficial insects that help control the pests. When beneficial insects are killed, it allows other pests to flourish, especially mites. A significant increase in the mite population on the plant can result from the use of insecticides to control aphids: one problem replacing another, to quote Will. Also, many aphids have developed a resistant to carbaryl (Sevin). So I don't use Sevin on any aphids because the beneficials will die and the aphids won't be harmed.

On larger infestations I prefer to use insecticidal soap or oil-based insecticides, like neem oil, if I make the decision to resort to chemical control. The soap acts by smothering the insect so they must be covered by the spray. Beneficial insects will not be harmed unless the spray hits them directly. Keep in mind that soaps and oils are not as effective in killing large numbers of aphids as the stronger insecticides. **CAUTION:** Both are phototoxic to plants when the temperatures approach 90 F. Neem oil is toxic to bees. The label states not to use when bees are visiting the garden. Another part of the label recommends using early in the morning or late in the day. There is no reference on the label that bees are collecting nectar and pollen in the morning. If you decide to use Neem oil, use it only in the evening when the temperature is lower, the chance of leaf scald is minimized and the bees are usually back in the hive.

When I do use chemical controls that might kill pollinators, I spare them by not spraying until late afternoon. By this time, the pollinators have extracted the nectar, collected the pollen and have gone home.

ANTS – the protector

Honey dew, a sugary liquid, is the waste produced as the aphid digests the plant sap. Clear droplets are eliminated through the aphid's rectum.

In this photo you can see a droplet of honey dew being expressed from one of the aphids. This is a food that the ants find irresistible. They do not eat the aphids, only their honey dew. Ants farming the aphids often stroke them with their antenna to stimulate the release of honey dew. In this photo, one antenna of the hovering ant seems to be just lifting off the aphid that has produced a drop of honey dew. Or is that just magical thinking on my part?



Photo by A Scott

The Aphid, The Ant, The Wasp, and The Mummy, continued

Ant-attended aphid colonies tend to produce more honey dew, be more stable, larger and last for a longer time. They place more stress on the host plant because the larger number of aphids consuming more sap. In return for the food supply, the ant will protect the aphids from predators and make sure they are well fed. Ants have been known to destroy the eggs of aphid predators like ladybugs.

Ants will move the aphids to a new food source should the current host plant become depleted of nutrients. The ants' main driving force is maintaining their supply of honey dew. The next two items describe the extremes to which the ants will go. Wow, with friends like these...

When the nutrients in a plant begin to decline or the population becomes excessive, some of the aphids develop wings so they can fly away to colonize a new location. Ants have been observed tearing the wings from aphids before they can become airborne.

A study found that ants can use semiochemicals to stop the aphids from developing wings and to impede their ability to fly away. A semiochemical is a chemical substance or mixture released by an organism that affects the behaviors of other individuals. "This can occur through direct physical manipulation, e.g. ants may bite and remove the wings of alate (winged) aphids (Kunkel 1973), or it may occur through chemical influence, e.g. the mandibular secretions of ants can inhibit alate development (Kleinjan & Mittler 1975). These ant adaptations limit winged aphid dispersal and probably benefit ants by allowing unusually crowded aphid aggregations, producing more honeydew." This quote is from the National Institutes of Health (see last reference at the end of this article.)

WASPS – the predator

These tiny parasitic wasps measuring one-tenth of an inch are called aphid parasitoids.



Photo from NEWS.SCIENCEMAG.ORG

Aphids scatter slowly at the approach of the parasitic wasp. Her ovipositor places her egg inside the immature aphid. A young instar is selected to ensure the aphid will survive the two weeks from the egg to an adult wasp. The life span of the aphid is only 30 days. The female will sting an instar and lay a single egg in the immature aphid. One female wasp can lay hundreds of eggs in her two-week lifetime.

The Aphid, The Ant, The Wasp, and The Mummy, continued

The wasp larva lives inside and feeds on the aphid's tissues. The aphid instar goes through four stages of development molting its exoskeleton between each stage. The wasp larva has an incomplete digestive system without a rear opening. This prevents the host aphid from being contaminated by the larva's waste. The wasp larva pupates and emerges as an adult from the dead aphid. As the larva grows, the aphid increases in size and the color begins to change to the final tan. Their larger size makes it easy to distinguish them from the normal aphids and their relative number reveals the extent of the wasp presence.

MUMMY – the possessed:

The mummy is the large, round exoskeleton of the dead aphid. In the photo below, there are a lot of mummies around and a minimal number of live aphids. There are no ants present, so I assume the wasp population and other predators are providing effective control. The adult lady beetle (right side picture) is an aphid predator. The black and orange insect at the top is a large milkweed bug that only eats seeds.



Photo by A Scott



Photo by A Scott

This photo shows the large exit hole on several mummies that is formed as the wasp chews its way out. A few yellow aphids are present.

Since 2008, I have been able to identify the mummy's large, tan body. A tan mummy indicates that the wasps that populate my garden are of the species *Aphidius*. If the mummies are dark brown or blackish, the species of wasp was *Aphelinia*.

The Aphid, The Ant, The Wasp, and The Mummy, continued

CONCLUSION:

1. I decide on how aggressive my control will be, if any at all, based on
 - how many aphids are present
 - the presence or absence of ants
 - if I see any predators like lady beetles or larva consuming the aphids
 - the number of mummies, indicating that wasp parasitoids are around
 - overall health of the plant
2. If you're lucky, all your aphid infestations can be controlled by mashing a few individuals or removing a branch or two.
3. Happy squishing.

References:

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Art Scott
Master Gardener
Editor, *MoM*

Growing Lettuce Indoors

From April 15th on, it is generally too hot to grow lettuce outdoors in south Louisiana because high temperatures turn lettuce bitter. During the late spring and summer months, you can still grow lettuce greens for your salads – indoors!

Supplies you will need:

- LED Grow Lights
- Plug-in mechanical timer
- Disposable foil pan with clear lid about 12 by 18 inches
- Peat moss, compost, and Perlite
- Two grams (about two tablespoons) of seeds, a “greens mix” with red and green lettuces

Place moistened Mel’s Mix (equal parts peat moss, compost, and Perlite) in a disposable foil pan. Sprinkle seeds over the surface and lightly rake in. Lettuce needs light to germinate. So do not cover seeds with soil. Press gently on the soil surface for good seed -to-soil contact. Cover with clear plastic cover. Place under a grow light or in bright shade outdoors (only if daytime temperatures are below about 70°F). Mist every few days to maintain a moist growing medium. Lettuce germinates quickly, generally in about four to seven days.

Once about half of the seeds have germinated, remove the lid and adjust the distance from the tips of the leaves to the grow light. The optimum distance varies with wattage and size of the grow light. So you may have to experiment to find the best distance. The lights may need to be as close as about one inch from the tallest leaf. Because light dissipates by the inverse square rule, moving the light too far from the leaves will greatly reduce light intensity and yield. Advanced indoor gardeners may want to install reflective wall panels. Set timer to be “On” for 16 hours per day. Keep soil evenly moist, letting it dry out slightly between waterings. A three-in-one moisture, light and pH meter can be helpful here.

Photo after 30 days. Note that tips of leaves are almost touching LED light. Commercial greens mix on the left, my seeds on the right.

Once seeds are sprouted, distribute Microlife 6-2-4 or similar granular organic fertilizer on the soil surface. The fertilizer may seem to turn to a fuzzy mold, but this simply means that it is breaking down faster to feed your greens.



Photo by J Schexnayder

Growing Lettuce Indoors, continued



Photo after 44 days. Due to travel, the tray of lettuce spent four days outdoors in shade. Temperatures were in the mid-80s, so it grew quickly, but the sap turned white and bitter, a sign of stress. When brought indoors for a week or two, the lettuce should recover to a sweeter taste. Note that some later seeds germinated after about 40 days (foreground).

Continue indoors watching, watering, and adjusting the grow light as the greens develop. Trim with scissors to create about a half an inch spacing between plants. Fertilize lightly with granular organic fertilizer every two to three weeks.

Photo after 61 days. Time for salad! To harvest, clip off only the outer leaves. If you leave at least two or three inner leaves the plant can continue to grow. Harvest as leaves mature for continued production.



Saving Lettuce Seed

You may need to move your tray outdoors or transplant some of the individual plants into separate pots to facilitate bolting (developing seed). Lettuce is self-pollinating, with each variety generally flowering in different weeks, which helps to prevent unwanted cross-pollination. Place pots at least 20 feet apart to further reduce the risk of cross-pollination. [Source: <https://homeguides.sfgate.com/self-pollinating-vegetable-plants-42482.html>] Cross-pollination of lettuce varieties in your own garden may not be a bad thing, as you may like the new designer lettuce you are creating.

This photo shows flowering and bolting lettuce outside in an container.

Growing Lettuce Indoors, continued

To contain and catch lettuce seeds, tie a piece of an old nylon stocking over the dying blooms. Once the flower heads begin to look downy, cut the stalk from the plant, leaving the nylon cover in place. A good use for those old stockings.

Allow the sprig of seed pods to dry indoors for several days. Then, over a large bowl, rub the dry seed pods between your fingers to release seeds. Lettuce seeds are tiny, flat, and oval shaped. Pour the seeds and chaff (seed pods or husks) onto a white paper plate or a large piece of paper. A lighted magnifying glass will help to distinguish the seeds from the dried flower parts. For the home gardener, there is no need to separate the seeds from the chaff; just place all the material in a small plastic bag and a label with the date and variety of lettuce. One plant can produce thousands of seeds – more than enough to plant several trays of greens next summer.



At this point, you may want to “proof” the seeds. Although it is not strictly necessary to show that the seeds are viable. To proof, simply sow a few of them on new soil mix in a clean foil tray. You may want to sow your seeds on one half of the tray and commercial lettuce seed on the other half for comparison. Label each half with description and date. If you get good germination, note this on the seed label.

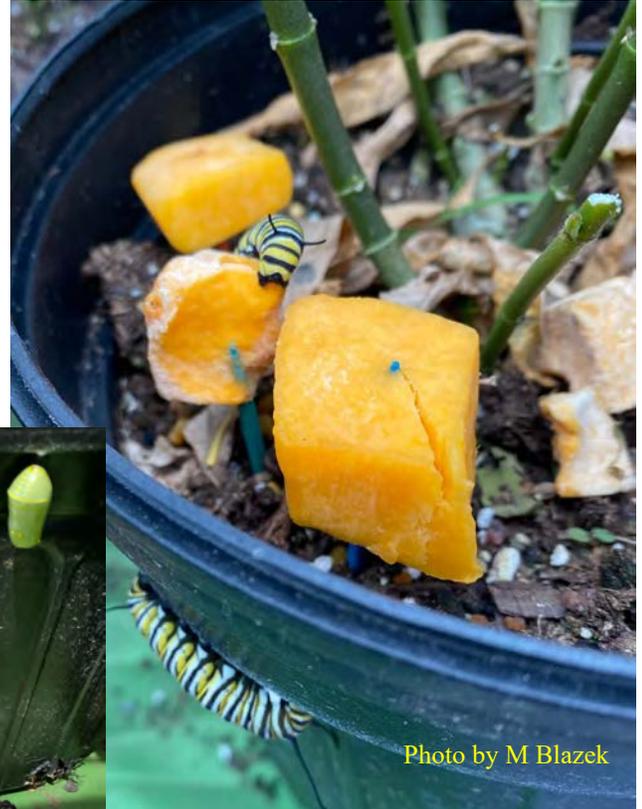
NOTES:

- I use LED Grow Lights: AeroGarden 45w LED Grow Light Panel, Black.
- I use Microlife 6-2-4 or similar granular organic fertilizer.
- If the lettuce becomes bitter with white sap (usually due to heat or other stress), soak the leaves for two to five minutes in water with a small amount of baking soda. Repeat once then drain and rinse. The bitter taste will be gone.

Janet Schexnayder
Master Gardener

Feeding Monarch Caterpillars

When your hungry, hungry monarch caterpillars have eaten all your milkweed leaves, there is an alternative food source you can supply. While younger instars are pretty exclusive to milkweed leaves, older ones will dine on butternut squash and other pumpkins once there are no more leaves, then morph to chrysalis and beautiful butterfly.



Jamie Blazek
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