

SHARE:

[Join Our Email List](#)



October 2017

Hello to all,

Hope you are enjoying the slightly cooler weather. We are doing typical fall gardening tasks, such as replacing greenhouse plastic on some of the greenhouses and cleaning up annual beds in preparation for fall color and spring-flowering bulbs. A new major exhibit, Big Bugs, has been installed. If you haven't seen them yet, you won't want to miss them. The individual insects are large enough to star in a King Kong movie, but tastefully made of wood and branches. They are placed throughout the grounds and really make you realize how amazing the insect world can be. I think most people look at insects as something they don't want to deal with or something to spray with a chemical. The number of insect pests that cause us problems are actually small in comparison to the many thousands that are beneficial. We all know there are many species of bees, moths, and wasps, and a huge percentage of these are pollinators.

But the fact remains that there are insects that help keep our world clean and healthy, consume organic matter, loosen the soil, bury dung, and thousands of other functions that are part of the web of life that most of us never see, but are important to keeping this planet we live on alive. Our Education Department has many of their fall events geared toward insects. Bring a child or grandchild and expand your horizons about some of the smaller forms of life, and, at the same time, be thankful they are really much smaller than our replicas.

We are starting to see hints of fall color. One thing I really like about the South is that the fall color is extended over a period of almost 2 months. Right now it's Dogwoods, a hint of color in American Red Maple and Goldenrod along the roadsides. It will soon be followed by Sumac, Deciduous holly, Viburnums, and many others as October finishes. As we get into November, there will be a final splash with Southern Sugar Maple, White Oaks and Japanese Maples showing a finishing blaze of glory around the week of Thanksgiving.

In this issue, Jim Crowder will tell you about our Fall Plant Sale. It is always hard to convince people to plant in the fall, but those who do will be happy next spring when their new plantings are larger and better established than perennials, trees and shrubs planted in the spring. Sherri McCalla will talk about an insect that has an interesting relationship with Opuntia Cactus and is useful to us. Finally, Carson Ellis will tell you about the Yucca Moth and how it pollinates the Yucca plant.

Wishing you a happy and healthy autumn season,

Rick

The Yucca Moth

Drab, nocturnal, a little stout, and quite a bit fuzzy, moths are often overlooked by gardeners. But, while you and the butterflies are cozied up for the night, the moths are winging in the moonlight, and performing some very important pollination services.

Because colors and shapes are not as prominent at night, moths aren't drawn to the same flowers that their diurnal counterparts, the butterflies, are. Instead, moth-pollinated flowers tend to be glowing white, and highly fragrant.



Photo by Andy Reago & Chrissy McClarren

Have you ever slipped out into the garden at night, and caught a whiff of *Nicotiana*, sultry and sweet in a dewy summer breeze? *Nicotiana* (flowering tobacco) is moth-pollinated! Some of these night-fragrant plants have highly specialized relationships with their pollinators. One key example is the relationship between *Tegeticula yuccasella* (the yucca moth) and *Yucca filamentosa* (commonly called Adam's needle, or Spanish bayonet). The relationship between yucca moths and yucca plants has existed for over 40 million years, and is obligatory-- neither could survive without the other.

Throughout the winter, yucca moths wait quietly in their cocoons, tucked away underground, sheltered from the cold. On a warm spring evening, they emerge, wriggling free from the earth, and tempted to the heady scent of yucca flowers. There in the flowers, they meet at last, male and female yucca moth, it is love at first sight! When the romancing is done, the female yucca moth departs, she still has work to do before the dawn.

Using two tentacle-like appendages near her mouth, she gently scrapes pollen from the anther of a yucca flower, forming it into a small, sticky ball, which she tucks beneath her head. Off she goes, to a second yucca flower, this time flying to the base, where she carves a small opening to the flower's ovary. Here, she lays her eggs. Then, she crawls to the front of the flower, and carefully scrapes away a small amount of pollen from her pollen ball, which she packs gently into depressions in the flower's stigma. At last her job is done: her eggs are deposited, and cross-pollination is ensured for the yucca. She carefully marks the flower with a pheromone, a chemical signal to other yucca moths that this particular flower has already been visited, and flies into the night.

It is important that she leaves this signal-- if too many eggs are deposited, the flower may be aborted altogether. When the eggs hatch, the larvae, cozily sheltered within the yucca's ovary, eat the developing seeds, but always leave enough for the next generation of yucca plants. After they've had their fill, they burrow out, and drop to the ground, where they will wait in cocoons to begin the cycle again.

The pollination of yucca flowers has been studied since the 1870s, and, as far as we know, yucca flowers cannot be pollinated without yucca moths, and yucca caterpillars cannot survive without yucca seeds. So, the next time you see a pale, little moth fluttering by your neighborhood yucca, give thanks to both for helping each other to persist.

By Carson Ellis, MBG horticulturist



The Good, The Bad, and the Red

If you were to walk through the formal section of the Herb Garden, you might walk past the Dye Bed.

Passing the dye plants, you might notice the prickly pear cactus and wonder how that plant is used for a dye. Well, there are two sources of dye from this one plant. The fruit of this plant is juiced and allowed to ferment and it produces a lovely dye ranging from light pink to a dark magenta. The second source of dye is a beautiful red produced by....wait for it.... an INSECT. What?

The cochineal is a scale insect. This scale feeds on prickly pear cactus and protects itself from predators with carminic acid. Besides being a predator deterrent, carminic acid creates a bold, bright, vivid red. The story of cochineal as it affects us today, begins with the Aztecs. The Aztecs used the insect to make glorious red dyes that were vivid and colorfast on fabrics. Spanish merchants – follow ups after the influx of conquistadores – saw the monetary value of this beautiful red. Red, after all, was a color, like purple, that was once used only by those of royalty (and those who thought they were): kings, Roman senators, the Catholic Church, and the British (redcoats, remember?). Previously, before cochineal, reds were acquired by red ochre and cinnabar. Neither red ochre nor cinnabar are very colorfast, and cinnabar is toxic. Another plant called madder (in the dye bed, also) is used to make reds, but not the quality of cochineal. The secrets of dyeing with the insect were guarded. The Spanish preferred to keep the information secret, and



FALL IS FOR PLANTING! (A statement rooted in truth!)

I'm sure you've heard this before. A ploy by nurseries to get you to buy their season ending inventory?

To some extent, maybe, **IF** you hear it from a person's point of view. From the plant's point of view...IT IS GOSPEL!

Think about the plant's environment. In the spring, the air warms quickly, the soil slowly. In the fall, the air cools quickly, the soil slowly. Our soil temperature can be fairly warm until after the New Year. Often you see roses still in bloom here at Christmas. So, by planting in the fall, you get the benefit of warm soil temperatures and good root development **BEFORE** the stress of next summer's oppressive heat. Which in Memphis, comes two days after the last frost!

Now, look at the perennials in your yard. They're likely showing some signs of fall. Spent flowers, spotted or crispy foliage, but can you remember how they looked early in the season? The same is true when buying perennials in the fall. **YOU ARE BUYING ROOTS!** Doesn't matter what the top looks like, most die back to the ground. They will look fabulous in the spring.

Now you know it's the time to plant; the time to **BUY** is ...

OCTOBER 7th, 2017
9:00 A.M. UNTIL 5:00 P.M.
and the **PLACE TO BUY** is the...
FALL PLANT SALE IN THE
NURSERY AT THE GARDEN

happily supplied misinformation about the dye, along with forbidding export of the live cochineal from Mexico. It was easy to maintain the charade due to the fragility of the cochineal scale itself. The scale only lives on prickly pear cactus, and requires a specific range of temperature and altitude, making it extremely unlikely at that time that live cochineal would be taken out of Mexico. Spain reigned supreme as the producer of cochineal red dye for three hundred years. Cochineal was also used to dye foods red, although large amounts were said to make the food bitter, and the bits of included bugs was off-putting. The advent of synthetic dyes in the latter portion of the nineteenth century led to the downfall of the market for cochineal dye. It is on a comeback, however: the banning of Red Dye No. 2 by the FDA in 1976 has induced makers to return to the cochineal insect for red coloring. This dye may be found in products today listed as carmine, cochineal extract, or E120. The sources I found say this is the only natural red food coloring authorized by the FDA. Before you get all grossed out, the bug parts are removed! Although some people are allergic to the cochineal itself, consider the fact that synthetic dyes – often derived from petroleum – often carry much greater health risks. Cochineal seems to carry no other known health risk aside from the persons who are allergic to it, but may be offensive to persons for ethical reasons (such as vegans and vegetarians). I am an omnivore and find this an interesting culinary aside as I eye my red candy-coated bit of chocolate...

Yummy!

By Sherri McCalla, Curator of Herb Garden

Memphis Botanic Garden's annual fall plant sale is here. We have a huge selection of perennials, many new and unusual trees and shrubs plus an outstanding selection of...
PANSIES, VIOLAS, ORNAMENTAL CABBAGE, KALE, MUSTARD, SWISS CHARD AND PEPPERS

Need a lot of perennials? Ask for the grumpy ol' nurseryman!

Come see us! Every dollar you spend goes right back into our Education and Horticultural programs!

By Jim Crowder, MBG horticulturist



Visit our website

