

THE WALTON COUNTY GARDENER

APRIL 2023

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Greetings Everyone!

In this edition:

In my area we recently had a small tornado. There wasn't any real damage, but a lot of fallen dead branches with lichens. This prompted the question of whether or not lichens are actually killing the trees. Here is an article from Rutgers University addressing just that question:

“Tree-Loving Lichens” - Rutgers University Extension

You may think that the reason you cannot grow that favorite peony or lilac here because it is too hot - but it's probably something else:

“Understanding Chill Hours” - Evan Anderson, Horticulture Agent, Walton County

Let's follow Debra's journey on growing dahlias -

“My Dahlia Diary” - Debra Nelson, Master Gardener, Walton County

The big chill over the past holidays killed many shrubs, but we are also seeing other damages not expected:

“What the Heck is Going On?” - Hydrangeas

Also, Information about the University of Florida Master Gardener Program





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by Walton County Master Gardeners

April 2023

LICHEN FUN FACTS

- 6-7% of earth's surface are made up of lichen

- Deer Moss is actually a lichen



- They are composed of algae and fungus living harmoniously together



- Lichen can and do live on just about anything



Tree-Dwelling Lichens

George H. Daniel, Rutgers Master Gardener, Somerset County, New Jersey

Introduction

There are at least 13,000 species of lichens living throughout the world. Lichen species are so numerous and diverse that there are individual exceptions to most general statements about them. Scientific knowledge about lichens has expanded significantly during the past few decades, and new discoveries continue. Most lichen species grow best where there is sufficient light and moisture within a moderate temperature zone. However, some lichen species are very adaptable and hardy. When left undisturbed, lichens live in many varying climates and altitudes throughout the world. Some species can survive the most unfavorable climatic extremes of arctic, alpine and desert regions by reducing metabolic activity for extended periods of time. Yet individual species may only exist within a restricted habitat or geographic range. Most lichens are very sensitive to air pollution, and like canaries in coal mines, may serve as indicators of air quality.

What Are Lichens?

Lichen is composed of two or more dissimilar organisms that form a mutually beneficial (symbiotic) relationship to produce a new vegetative body that is called a thallus. The life forms are composed of a fungus (kingdom Fungi) and most often a green alga (kingdom Protocista) and/or a cyanobacterium (kingdom Monera). The fungal filaments make up about 80% of the lichen body. The fungus forms the outer surface to provide support and protection, absorb moisture, and collect minerals from the air. Since the fungus cannot produce its own food, it is dependent upon another life form to provide that essential function. Green algae and cyanobacteria possess the green pigment chlorophyll that is essential for photosynthesis to make food. When surrounded by the fungus, they provide the food to enable the lichen to exist and sustain itself in a suitable habitat.

Unlike plants, lichens do not have leaves, stems, or roots, or a waxy outer cuticle to control body water content. Lichens continue to grow during periods when dew, mist, and rain water are present but a summer dry period can cause them to become dormant until the next rainfall. Minuscule mineral particles that are carried by the wind during wet conditions are dissolved and absorbed by the lichen.

Lichens produce their own food using sunlight energy and do not feed on the tree bark. The lichen bodies are attached to the outer tree bark and remain on the surface. Their rhizines typically do not penetrate deep enough into the inner bark, and cause no harm to the trees they inhabit.

In contrast, certain fungi operating independently outside a lichen body will penetrate tree wounds or dead wood and feed on the host plant. The filaments of the fungal body will reside inside the tree tissue with only the fruiting bodies visible on the surface.

Lichens on Trees

Lichens are often found on tree trunks, branches and twigs as the bark provides a stable place to reside to collect needed sunlight, rainwater and materials from the air. They grow on healthy trees, as well as stressed or otherwise unhealthy ones. The appearance of colorful organisms growing on the bark of trees or shrubs in the landscape sometimes causes concern for the homeowner. Homeowners may find lichens mysterious and incorrectly associate them as the cause of plant diseases or misidentify them as a type of moss.

Many lichens are more evident on stressed or old tree trunks and branches giving the appearance of a "cause and effect" association with disease and decay. The primary reason for their more likely presence on those trees and branches with reduced or partial foliage is the resulting increase in available sunlight. The bark of a healthy tree continues to expand and slough off with the growth of the tree. The bark of an older or stressed tree may become more brittle with more cracks and uneven surfaces permitting lichens to attach themselves more readily. As bark ages, it changes in chemistry, texture, and ability to retain water, thereby influencing the type of lichen capable of living there.



While fungi-within-a-lichen associations do not harm trees, some fungi outside of a lichen relationship can and do penetrate damaged or dead wood tissue and commence the decomposition of the tree. Fungi are one of the few living organisms that can break down all of the substances in wood tissue and are essential in nature in clearing away fallen tree trunks and in depositing the remaining material into the ground in the forest. A diseased or stressed tree can have both lichen and separate fungal organisms growing on the same dead

branch or portion of the tree. In that case, the homeowner or tree expert may need to prune away the dead tissue for the benefit of the remaining plant. In making these types of decisions, homeowners need to understand the unique nature of lichen and the differences between those fungi within a lichen symbiotic relationship and other fungi operating separately.

Lichen Classification

Lichens do not conform precisely to the usual biological classification categories as they are composed of two or more types of organism living within a single body. Some previous classifications have been modified by recent DNA studies of lichens. The lichen's appearance and structure are largely determined by the genetic makeup of the fungus that is generally considered the dominant organism. The lichen genus name is normally the same as the specific fungal name, while the species name is descriptive of the resulting dual organism in Latin.

Lichen Identification



Close-up of foliose lichen. (Photo by Nick Polanin.)

Lichen identification most often is determined by the descriptive appearance, size, shape and color of the lichen body and the reproductive characteristics. Lichens are placed in groups based on their body forms and features. The three main body groupings are crustose (crust-like,), foliose (leaf-like, seen above), and fruticose (tube or beard-like strands).

The various chemicals produced by lichens are also identifying markers. Lichens also can be somewhat differentiated by the specific type of habitat where they live, such as rock, soil or trees, as well as their geographic distribution. While a 10X hand lens is essential in studying lichen specimens, microscopic examination is usually required to identify crustose lichen species.

Lichen Reproduction

Lichens may reproduce in a sexual, asexual, or vegetative manner. Lichen sexual reproduction is quite complicated as two or more organisms are contained in the lichen. The algae or cyanobacteria do not have recognizable reproductive parts and do not reproduce sexually after they are in a lichen association. The sexual fruiting bodies of lichens are those of the fungi. Most fungi that form lichens are sac fungi (Ascomycetes) that produce microscopic spores in sacs. A fungus can produce millions of spores sexually. A new lichen association can be created only when fungal spores come in contact with the appropriate algae or cyanobacteria in the correct habitat.

Lichen reproductive parts containing both algal and fungal cells may occur asexually for dispersal. In vegetative reproduction, any fragment or shred of lichen containing both the algal and fungal components that breaks off the original can form a new lichen body. In some circumstances, the fragments must break down into undifferentiated fungal and algal cells before new lichens are created.

Where Lichens Live

Different lichen species can grow on many types of surfaces, including tree bark, dead wood, bare rock, cleared soil, rusty metal, animal bones, glass, plastic and cloth. Some lichens can grow on many type surfaces while others are confined to specific types of trees or rocks. Many lichens commonly found on living tree bark are seldom discovered growing on rock or soil, as these different lichens need varying surfaces to become established.

Lichens of North America documents hundreds of species of lichens that reside on trees. It is the primary reference for lichen identification and related information in this fact sheet. Lichen species on bark do not follow the classic succession of crustose followed by foliose and then fruticose that is evident in the colonization of rock. The relatively faster growing foliose and fruticose lichens are often the first to appear on tree bark to be followed later by crustose lichen.

The growth of lichen on tree bark depends more on the physical surface of the bark than on the kind of trees. Young trees in general have a smoother bark that tends to attract crustose lichen species. As trees get older, the bark usually develops uneven broken surfaces that permit the foliose and fruticose lichens attach to the tree.

Lichens found on trees often are circular or oblong in shape with leaf-like lobes (foliose) that are parallel with or slightly higher than the bark. Each lichen body usually is limited in size to a few inches in diameter and initially may be dispersed along the bark. While they grow very slowly, i.e. one to a few mm per year, over time they tend to grow together and cover large sections of the bark.

Deciduous Trees

Lichens tend to grow on the inner trunk and branches of deciduous trees and shrubs. While the tree's leaves may shade the available sunlight for the lichens during the warm weather growing season, the lichens do not similarly affect the leaves. After the leaves fall from the deciduous trees in the autumn, the lichens receive a greater proportion of the available sunlight and continue to grow during the colder winter months.

Conifer Trees

Conifer tree bark differs in chemistry from deciduous tree bark as it is more acidic with organic resins and gums. Conifer canopies tend to be denser and allow little sunlight to fall on the bark. In the case of conifer or evergreen trees, some lichens can survive in the resulting year-round partial shade. To obtain sunlight they also tend to locate on branches that are stressed or dead, which may again give the erroneous impression that they have contributed to the plant's health condition.

Lichen Benefits

Lichens provide many benefits both in nature and in human culture. Lichens are eaten by many animals, such as deer, mountain goats and caribou. Many species of birds use lichen materials in constructing their nests. Certain lichens are used in producing antibiotics, while others provide the miniature plant landscape for model railroad tracks.

Lichens are numerous and important organisms in the natural environment that are generally beneficial in nature. The presence of lichens on healthy trees should be welcomed as likely positive indicators of lower levels of air pollution and a reasonably good quality of atmospheric conditions in the neighborhood. The homeowner with lichens residing on their damaged or diseased tree branches should concentrate upon identifying the real sources for the tree distress if any is seen. The lichens are not the cause for the condition of the stressed tree. However, lichens may co-exist on trees with other organisms that are causing disease or injury. Abundance lichen presence concentrated on damaged or dead wood may be a warning of present or impending invasive disease or decay caused by fungi, bacteria, viruses or insects and may require corrective action by homeowners or tree care professionals.



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Understanding Chill Hours

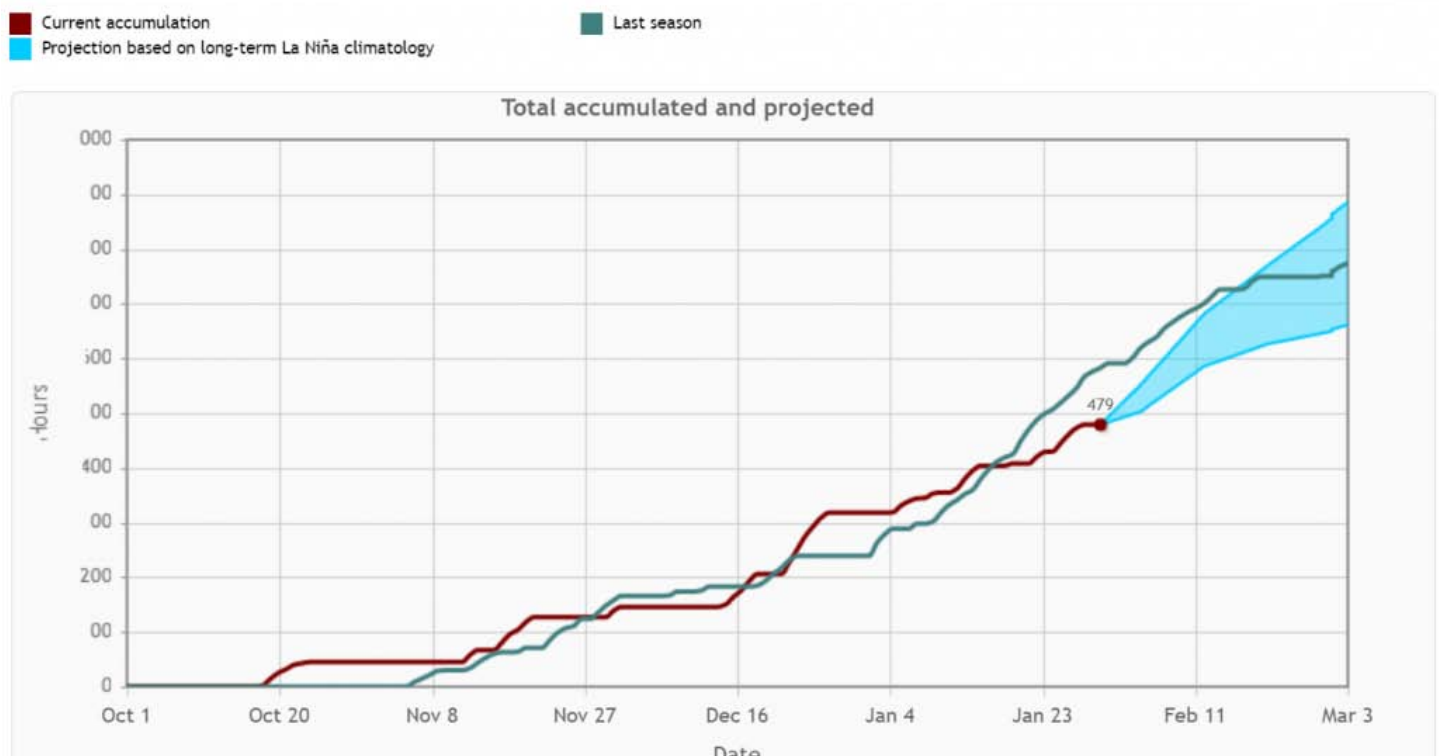
Evan Anderson, Horticulture Agent, Walton County Extension

Any North Florida resident who has tried their hand at growing apples, peaches, or plums may occasionally find themselves frustrated by a year (or two...or three) with a poor or nonexistent harvest. What has gone wrong? Are the trees getting a disease? Were they not fertilized properly?



It may be that the tree owner has done everything correctly, but the weather is actually to blame. The answer to “what has gone wrong?” may lie with a concept called “chill hours”. Plants that are adapted to living in colder climates need some way to figure out when the winter is over. If a plant starts blooming too early, it’s likely that a frost will come along and knock out this year’s flowers. No flowers, no fruit. For a plant, this means no little baby plants this year to keep the species going. To avoid this, some plants have figured out a way to detect and keep track of how cold it’s been in a particular year. When enough hours of cold weather have accumulated, that’s usually a safe signal that spring must be near. This means it’s time to blossom when the weather next warms up.

Usually. Different varieties of plants are adapted to blossom at different times of year, depending on the average amount of cold weather the area they live in gets each year. A plant from a colder climate might not start growing flowers until it has detected 1,000 hours of cold...or more! Given that the temperature range that counts as a chill hour is around 32-45 degrees Fahrenheit, you might correctly guess that such varieties will NOT do well in Florida. **In north Florida, we receive somewhere from 500-700 chill hours each year. This winter (as of February, 2023), we have received 479 chill hours in Walton County.**



Chill hour total for Walton County, as of Feb 1, 2023

That's not a lot, and we may not get much more weather that plants recognize as cold enough to count. Apple growers with varieties that need even as few as 500 chill hours may not be making many pies this year. So what can be done?

First, temper your expectations. Understand that even though we may get the occasional hard freeze, it may not count any more toward the chill hour requirement than temperatures just above freezing. Then, when it warms up the following week, those 70 degree temperatures may actually set BACK the chill hour clock for some plants.

Second, choose varieties that require few chill hours in the first place. A 'Honeycrisp' apple, needing 800-1000 chill hours each year, is probably never going to produce fruit in the panhandle of Florida. Other apple varieties might, though! Try varieties such as 'Anna' (which needs only 300 chill hours), 'Dorsett Golden' (250 hours), or 'Tropic Sweet' (300 hours). For peaches, try varieties like 'GulfAtlas', 'Gulfcrimson', or 'Gulfsnow' (400 hours each).

Third, consider learning to love other types of fresh fruit. Persimmons, figs, kumquats, and loquats may not show up very often in treasured family recipes, but they can offer a tasty alternative to plants that simply might not be well adapted to our climate.

Dahlias are the mainstay for many gardeners; from their pompoms to the large plate-size dahlia, and the tremendous color variety. It seems everyone can grow dahlias and they do and they are glorious. Yet, I have not attempted to grow these flowers because I assume that it's just too hot here. **Master Gardener, Debra Nelson**, has decided to attempt to grow them and I hope she has success so we all can!

My Dahlia Diary



After retiring December 31 2019, I found myself wondering what the next chapter of my life would bring. Traveling, volunteering or joining a club became impossible because within two months the pandemic hit and the world stopped turning.



I resorted to binge streaming gardening shows, *Gardeners World* quickly became my favorite. The English love their gardens and so do I. I fell in love with dahlias. The beautiful bouquets make your eyes dance.

My dilemma of filling my time was solved, gardening would be my hobby. Big box stores were open and it was outside in sunny Florida so how could I go wrong.

I found dahlia tubers at a local box store at the end of the planting season so I bought the left overs, followed the package directions, and waited for the results. To my delight I harvested my first garden of dahlias last year.

If you would like to grow dahlias in your garden here are a few simple steps.

1. Pick a sunny spot and wait until after the last frost and the ground temperature is above 60 degrees. For most areas this is April through May. I planted some of my new tubers in early March since I live in zone 9A. I also planted some in starter pots to control their temperature. They have already sprouted, and I have transferred them to the garden.
2. Dahlias need well drained sandy soil, slightly acidic, with a pH of 6.5 to 7. Next, lay them 12-18 inches apart, 4-6 inches deep with the tubers on their side and the eye facing up. I sift bone meal in the hole to give them a healthy start.
3. Cover them with soil. It may take 4 weeks for them to sprout. Watering will depend on where you grow your dahlias. Over watering can cause your tubers to rot.



Now the waiting begins. Check out our next month's newsletter to see how this year's dahlia garden has progressed. I hope the news is good!

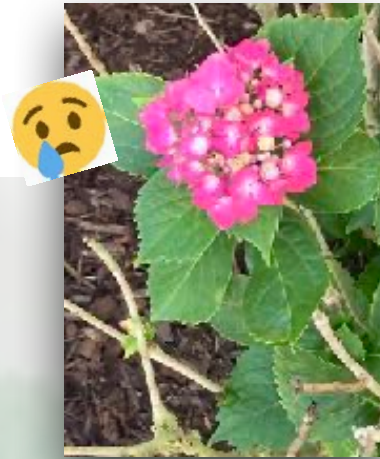
Editor's note: Dahlias can be grown by seed. Spread seeds on a flat tray full of potting mix. Do not use a mix with added fertilizer. Sprinkle the seeds on the top then mightily cover with your potting mix. Water, keeping the soil damp but not soaking. Place in a sunny window. Germination should occur 7 to 10 days. Once they reach 3 inches, separate and transplant into small pots, not too large or they will not get enough water. Let them continue to grow for about 4 to 5 weeks.

Then bring them outside and harden off by slowly introducing the sun over 7 days. If we are still having chilly weather at night, bring them in. Once planted, treat them like any other plant. Do NOT over fertilize!

They will produce tubers by the end of the season. These can stay in place over the winter; no need to dig up.

WHAT THE HECK IS GOING ON?

Do your hydrangeas look like this?



But usually look like this?



So what happened?

Our arctic blast during the holiday really took its toll on the mophead hydrangea. Although these grow up north where they have freezes all winter and aren't effected, we did have very warm weather just before the freeze. This allowed the flower buds to form for spring's bloom, thus getting frozen during our cold. I am not expecting anything of these shrubs this year unless the repeat bloomers do better. I'm such a huge hydrangea fan! Very disappointing.

Good news though - Oakleaf hydrangea is doing spectacularly!



What is a Master Gardener Volunteer?

(and would you like to be one?)

A Master Gardener Volunteer ...

Is an educator conveying research-based gardening information to residents of Santa Rosa Co.

Has an interest in any type of gardening, such as vegetables or ornamentals.

Wants to share gardening knowledge and skills within the community through extension programs.

Is trained by UF/IFAS Extension professionals.

Is willing to donate time to educational projects.

Is the Master Gardener Volunteer Program For You?

To help you decide if you should apply for volunteer training to become a Master Gardener, ask yourself these questions:

Do I want to learn more about plant care and gardening?

Do I look forward to sharing my knowledge with people in my community?

Am I eager to participate in a practical and intensive training program?

Do I have enough time to attend the training and to complete my volunteer work?

If you answer "yes" to the above questions, the Master Gardener program may be for you!

How Are Master Gardener Volunteers Trained?

Joshua Criss, Residential Horticulture Extension Faculty, coordinates the training program and does the majority of the teaching. Regional University Extension specialists, Master Gardeners and other horticulture experts teach classes. During the training sessions, these experts will use lectures and hands-on activities to expose participants to the many different aspects of horticulture.

What are the Training Topics?

Some of the topics covered during the training course include: basic botany, entomology, fruit crops, lawns, plant diseases, soils, fertilizers, vegetables and many more.

How do Master Gardeners Volunteer Their Time?

Once the participants enter the training program, it is time to begin volunteer service. Volunteer activities vary according to the county's needs and the volunteer's expertise and interest.

How Do I Become a Master Gardener Volunteer?

The Master Gardener training course is generally held once a year. The training schedule will run for 15 weeks.

If you are interested in becoming a Walton County Master Gardener, an orientation will be presented on August 10, 2023 at the DeFuniak Springs Extension Office on 732 N. 9th St.
Contact Evan H, Anderson, Horticulture Agent - eanderson350@ufl.edu