Figure 1. Remove mulch around a tree's trunk to expose the root flare. Photo by Damon Abdi

Simple Solutions for the Summer Landscape:

Turning the Page on Winter and Spring Issues

Winter weather is comfortably in our rearview mirror; however, the challenges caused by the cold, snow and ice remained at the forefront of our minds all throughout the spring season. Many of us anxiously awaited the return of our favorite ornamentals in the landscape, hoping that plants were A-OK and not D.O.A. as the weather warmed up. In the spring publication of Horticulture Hints, patience and pruning were suggested as the proper courses of action. Patience for some plants to come back to life (i.e., woody perennials) and pruning for other plants to support a fresh flush of growth for the season (a Valentine's Day pruning for roses; an early March pruning of ornamental grasses) were suggested practices. For the eager gardener, holding out hope that their favorite trees and shrubs survived the cold, the scratch test was suggested to assess whether the plant could fight another round or was down for the count. Regardless of whether plants were bid farewell (or good riddance), the spring season saw many successful sales at retail garden centers and spring events throughout the state. As attention turns to summer, take the opportunity to properly support new plants as well as give one last chance to breathe life into plants that were a little worse for wear following winter.

Patience is indeed a virtue, but at a certain point inaction can be an issue. For plants that have yet to show signs of survival, more aggressive measures may need to be taken to reinvigorate growth. In general, it is not a good idea to remove

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Still Waiting for Leaves?

How To Tell if Your Tree or Shrub Is Dead, Dormant or Just Struggling

By late spring to midsummer, most trees and shrubs are fully leafed out and actively growing. However, if a plant in the landscape is still bare, sparse or failing to thrive, it's natural to wonder whether it's dead or simply struggling. While spring is typically the ideal time to assess plant health, there's still plenty that can be done in summer to check for signs of life and determine whether a plant can recover with the right care.

A simple and effective way to test plant vitality is the scratch test. Using a fingernail or pocketknife, gently scratch away a small section of bark on a twig or stem. If the tissue beneath is green and moist, that part of the plant is still alive. If it's dry and brown, that section may be dead. It's a good idea to start this test near the base of the plant, as the lower trunk and roots may still be viable even if the top growth is not. Another quick check is the snap test. Bend a small twig to see if it's still flexible. Live wood will bend, while dead wood will snap cleanly and feel brittle.

In summer, visual clues also become more telling. Plants that have not produced any buds or leaves by this point, especially if combined with brittle branches and bark damage, may not recover. Signs such as peeling bark, deep cracks or fungal growth often indicate that a plant is in serious decline. However, if green tissue is found through scratch testing, especially lower on the plant, there may still be a chance for recovery. Many trees and shrubs can experience delayed growth due to stressors such as late freezes,

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more than one-third of the plant material when pruning. This puts significant strain on the plant to survive. However, if the plant is in dire straits, it may pay off to prune more.

After the snow melted and cold weather subsided, sweet viburnums (*Viburnum odoratissimum*) were commonly cited as a plant that unfavorably fared winter's chill. As a last-ditch effort, it may be worthwhile to cut the plant down closer to the ground and provide a healthy dose of fertilizer to support a fresh flush of growth. Do we normally want to remove so much growth? No. Do we normally want to hard prune Viburnum before the spring flower display? No. But do desperate times call for desperate measures? Sometimes, yes. If the decision must be made between aggressively pruning a plant or letting it linger on death's door, then there is nothing to lose and everything to gain by giving it a shot. Make the cuts and add a little fertilizer to the ground to hopefully spur new growth.

While the past is the past, purchases made this spring can be supported through several methods to protect your investment. Spring was a great time to put new plants in the ground, with woody perennials promising year-after-year interest in the landscape. However, to make good on this potential, it is important to provide proper conditions and management practices to support long-term health.

If best planting practices were followed, the hole width was at least twice as wide, and the plant was installed with the root flare just above grade.

Was it mulched properly? Mulch provides a range of benefits to the landscape, such as helping to moderate soil temperatures, retain moisture and suppress weeds. Improper mulching practices can wreak havoc on new plants. What should you do? A thin layer (2 to 4 inches) of organic mulch (i.e., pine straw, shredded wood or other natural mulch) can be spread around the plantings to act as a buffer between soil and air. Mulch will help soil temperature changes remain more muted throughout the summer season, creating conditions that are more conducive to healthy plant growth. One of the most frequent mistakes with mulching involves piling up material against the trunk of the tree. Avoid building these "mulch volcanoes" around the trunk, as this can lead to disease issues and choke out the roots from much needed oxygen. If mulch mistakes were made, carefully remove some of the mulch around the trunk to create a more manageable saucer shape that exposes the root flare (Figure 1).

You may notice some plants sending suckers up from the base (Figure 2). Pruning off suckers can assist the plant in focusing resources on desired growth.

What about fertilizing? New trees and shrubs may not need fertilizer the first year. Instead, allow it to grow into its new home naturally over the first season.

What about watering? New transplants benefit from more frequent watering in order to ensure that the smaller root mass has access to water before it evaporates from the surface or percolates too deep into the soil. Established trees generally will benefit from less frequent but more thorough watering. Of course, this all depends on what Mother Nature has in store for the summer. Many years are quite forgiving,

Figure 2. Prune off suckers that come up from the base of some plants. Photo by Damon Abdi

with ample rainfall reducing the risk of soil drying out too quickly; however, as we observed two summers ago, extended droughts are not out of the realm of possibility. Closely monitor weather conditions to ensure plant needs are met. Droughts have a funny way of causing people to tell on themselves when it comes to watering habits.

Speaking of summer weather, don't forget to lock down other features in the landscape. An ill-timed storm can cause items to blow through your garden and turn possessions into projectiles. When windy weather is imminent, take precautions to mitigate things moving around. Umbrellas should be closed. Chairs and other furniture should be tied down and precariously positioned branches should be removed. While the appropriate time to prune varies between plants, you can remove dead, dying, diseased or damaged branches from the landscape at any time.

So, as we set our sights on summer, take the time to give one final shot at life for plants that suffered this winter. If you are deliberating between removing a plant entirely or continuing to wait for it to recover, give it a hard cut. You probably have nothing to lose. Make sure that new and existing plants are supported with proper management practices including mulch, fertilizer and water. Remove suckers as they appear from your existing plants. Finally, make sure that various landscape features and objects are tied down in the event of windy weather

Damon Abdi, Ph.D.
Assistant Professor, Extension Specialist, Hammond Research Station

Summer Gardening Tasks in the Hobby Greenhouse

A small greenhouse is a great tool to add to your gardening arsenal. Starting seeds, overwintering container plants and propagating cuttings are all possible and have a higher success rate with a greenhouse. If you are new to using a greenhouse or have one and aren't sure where to begin, this guide will help you fully utilize these structures to their full potential this summer.

Fall plants started from seed inside a hobby greenhouse. Photo by Marcie Wilson

May

By the month of May, most of our vegetable and flower transplants have been set out, as well as our warm-season container plants, leaving the greenhouse fairly empty. This is a great time to reset and clean out your greenhouse for mid and late summer seed and cutting culture. Open all the doors and windows to allow some fresh air to flow through. Pull out any shelving or tables if they are not permanently installed and sweep out any debris or loose soil. Check the greenhouse for wasp nests or any other pests that may be harmful to plants. Fill a clean sprayer with a 10% bleach solution and spray down the walls and surfaces to sanitize any lingering disease pathogens. Be sure avoid windy days for this task to prevent drift to nearby plants. Once sanitized, return the tables and shelves back to the greenhouse, creating some shady lower spots for placing cuttings, and mid-level full sunny spots for seed germination. May is a great time to start a second crop of heat-loving bedding plants like zinnias, marigolds, rose moss, salvia and periwinkles to extend the blooming season.

June

It's time to start thinking about our cool-season bedding plants. In June? Why so early? With a greenhouse, we can get a big head start on fall bedding plants like pansies, snapdragons, dianthus, petunias and even geraniums. If you have never tried your hand at starting cool-season bedding plants, this is a great time to experiment. Start shopping with your favorite online seed suppliers and try some new varieties that catch your eye. All the above listed bedding plants are relatively easy to start from seed. By purchasing your seed early, you will have a good selection while avoiding stock shortages and will be right on schedule for starting your cool-season garden indoors. June is also a great time to take garden cuttings of easy-to-propagate annuals and perennials like coleus, sweet potato vine, begonia, torenia, geranium, dusty miller, salvia, chrysanthemum, lantana, verbena, gaura, buddleia, scaevola and sedum. If your house plants are looking a little overgrown, you can also take cuttings from things like pothos, croton, purple heart, arrowhead, philodendron, dracaena and dieffenbachia. If your herbs are well established, rosemary, basil, mint, stevia, lavender and sage are all fairly easy to root from cuttings. Place cuttings in moist potting soil and place on a lower, shadier level of your greenhouse out of direct sunlight. Cuttings will root faster in the warm, moist environment of your greenhouse as opposed to a sunny window or low-light patio. And if established enough, your cuttings will be ready to plant in the fall. A good rule of thumb to follow with greenhouse cuttings is to leave them and forget about them to some degree. Keep the cuttings moist, never allowing them to fully dry out, but otherwise simply leave them to do their thing while the cuttings recover and start the process of root formation. The use of rooting hormone will aid in the process.

Start a second crop of zinnias, rose moss and periwinkles in May to extend the blooming season. Photo by Marcie Wilson

Dusty miller cuttings can be taken in summer for fall planting. Photo by Marcie Wilson

July

Start your cool-season flowers, vegetables and herb seeds for a head start on fall planting. For flowers, start seed of pansies, violas, petunias, sweet William, calendula, nasturtium and snapdragon. For vegetables, start broccoli, Brussels sprouts, cabbage, cauliflower, Swiss chard and fall tomatoes. Cool-season herbs to start in July include dill, cilantro, rosemary, parsley, sage, mint, lemon balm, oregano, chives and thyme. Starting your cool-season crops in July will give your transplants plenty of time to grow and be of good size in time for fall planting dates. July is also a great time to take softwood cuttings of your favorite pass-along plants like confederate rose, hydrangea, perennial hibiscus, lilac chaste tree, angel's trumpet, roses, beautyberry, althea and bee balm. Treat these cuttings the same as your June cuttings, and you should have some nice transplants in time for fall plant swaps.

A summer start of pansies for fall planting. Photo by Marcie Wilson

Throughout the summer months, it is recommended to keep doors, windows and vents open to prevent the greenhouse from overheating. Inside temperatures can reach well over 120 F if the greenhouse is not properly ventilated during summer months, creating an environment far too hot and humid that will smother your plants. Only take cuttings from pest-free and disease-free plants and always sanitize surfaces and containers before use. The greenhouse is also a great place to sterilize old potting soil for reuse. Place used potting soil in a plastic storage tote with a lid, and leave in the greenhouse for several weeks, opening occasionally to stir and rotate the soil. This solarizing effect will sterilize the soil of any pests or pathogens. This process will also break down the soil a good bit. Replenish your newly sterilized soil with compost or slow-release fertilizer.

Whether you're new to owning a greenhouse or have been thinking of purchasing one, remember to start small and learn as you go. There are many universal best management practices for greenhouse culture to follow, but often the best way to learn is to just jump in and get your feet wet. Smaller hobby greenhouses are fun to own and operate and are great starters for those wanting to learn and expand their gardening capacity. Hobby greenhouses are easy to set up and can be purchased through many online retailers and big box stores. Place in a full-sun area, running north to south with the broadsides facing east and west, and secure well with metal posts and zip ties or twine at each corner. The greenhouse canopy will have excess length on all sides that can be further secured to the ground with stakes, sandbags, landscape timbers or cinder blocks. Securing your greenhouse is crucial for success, especially in Louisiana with hurricane season upon us and severe weather season next spring. High winds can turn an improperly secured greenhouse into an oversized kite. Nothing is more heartbreaking than watching your plants and hard work get scattered to the wind. Follow these recommendations, and your hobby greenhouse journey will be off to a great start

Marcie Wilson, Assistant Extension Agent
Tensas, Catahoula, Concordia,
Franklin, Madison, East Carroll parishes

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drought, transplant shock or other environmental challenges. Some may only flush out partially or take longer to regain strength, even well into the growing season.

For plants that are alive but showing poor or delayed growth, supportive care can help reduce further stress. Deep, infrequent watering is important during hot summer months. Water should be applied at the base of the plant, preferably in the morning, to avoid encouraging disease. Pruning should be avoided unless there is clearly dead wood, as trimming live tissue can further stress a struggling plant. Applying mulch can be beneficial, 3 to 4 inches around the base helps conserve moisture and regulate soil temperatures, but the mulch should be kept away from the trunk to prevent rot. It's also wise to monitor for signs of insect damage or disease, as weakened plants are more susceptible to pests.

If a plant has not shown any signs of life by midsummer and fails both the scratch and snap tests, it may be time to consider replacement. However, as long as there is green tissue and some sign of growth, continued care and patience may be worthwhile. Not all plants follow the same recovery timeline, and even a struggling tree or shrub can rebound with the right support. With a careful eye and a bit of summer maintenance, many plants that appear beyond help can still surprise with a second chance at life.

Mark A Wilson
Horticulture Agent, Northwest Region

Care for Freeze-Damaged Palms

Ornamental palms are native to tropical and subtropical climates. They are monocots, or grasslike flowering plants, and belong to family Arecaceae. Their trunks, or stems, are solid with vascular bundles scattered throughout the cross-section. Palms have a central growing point called an apical meristem, also known as a bud or heart, from which all new fronds emerge. If for some reason this central growing point gets killed, the palm will die. This can happen even to fully grown, well-established palms.

Twenty-one species of palms are known to exist in Louisiana. Some of the most common palm species planted in the state include the Canary Island date palm (*Phoenix canariensis)*, cabbage palm (*Sabal palmetto*), Chinese windmill palm (*Trachycarpus fortunei*), date palm (*P. dactylifera*), queen palm (*Syagrus romanzoffiana*), silver date palm (*P. sylvestris*) and Washington palm (*Washingtonia robusta*).

Like other tropical or subtropical plants, palms also suffer from frost/freeze injury (Figure 1). Colder temperature injuries begin to show up on exposed palms in two to three weeks. This delayed onset of outward signs of cold damage is typical for palms. Before you start caring for freeze-injured palms, you need to figure out what kind of injury has occurred.

There are three types of injury palms can sustain in low temperatures. One type of injury is chilling injury from temperatures above freezing, which results in browning of leaves commonly known as necrosis, or death, of the palm fronds. Chilling injury results from a sudden drop in the temperatures in the 40-to-45-degree range. This type of injury is not deadly, and affected palms recover fully from the damage.

The second type of injury is frost injury that occurs when the leaf temperature drops to 32 F or below. The damage is similar to chilling injury, but affected palms may take longer than a year or more to fully recover (Figures 2, 3 and 4).

The third type, a deadly type of injury, results from a hard freeze. Extended temperatures below freezing not only affect the exposed fronds but may also kill the base of the spear leaf (newest leaf in the palm canopy) in the apical meristem. This dead tissue is subsequently colonized by decomposing fungi and bacteria, resulting in the death of the meristem.

Severe freezing temperatures may also kill the apical meristem. The spear leaf turns brown and can easily be pulled from within the palm canopy. Once the meristem of the palm is dead, it will not produce another one.

Figure 1. A cabbage palm (left) exhibiting mild freeze injury, compared to a silver date palm (right) severely injured from a hard freeze. Photo by Raghuwinder Singh

Figure 2. A silver date palm damaged from a hard freeze. Photo by Raghuwinder Singh

Figure 3. A queen palm damaged from a hard freeze. Photo by Raghuwinder Singh

Freezing temperatures also can cause the stems of some species, including queen and silver date palms, to split longitudinally (Figure 5). These splits are later colonized by decomposing organisms, resulting in softening of the stem. As the decomposition progresses, vascular tissue rots (Figure 6), interrupting the water and nutrient supply. In some instances, palms break in the middle at the affected area.

When it comes to caring for freeze-injured palms, be patient. Do not rush into removing the affected (brown) fronds immediately after the damage becomes visible. If a portion of a frond is still green, leave it on the plant as long as possible. It may look unsightly, but it will benefit the palm during the recovering phase. The green portion will aid in photosynthesis necessary for production of sugars to support growth. Palms usually start their growing season long after other shrubs and trees begin their spring growth flushes. Wait for the affected palm to produce new growth and do not remove the affected fronds until the danger of additional hard freezes is over.

Affected palms should not be irrigated or fertilized immediately after the freeze injury. Fertilize palms during the active growing season from as early as late spring to early fall. Water palms adequately to avoid any drought stress, especially during summer months. Wrapping a palm trunk in burlap or a frost protection blanket to prevent cold damage does not protect the apical meristem.

If a cold-damaged palm does not produce new growth and has to be replaced, plan to plant a new one in early summer. Root growth in Louisiana is best in June, July and August, and new palms will also benefit from annual fertilization in early summer. When selecting new palms, think about cold-hardy species, including cabbage and windmill palms.

Raghuwinder Singh, D.P.M.
Professor and Horticulture Pathology Extension Specialist

Figure 4. Two Canary Island date palms damaged from a hard freeze. Photo by Raghuwinder Singh

Figure 5. Longitudinal splits and decomposed tissue on a queen palm. Photo by Raghuwinder Singh

Figure 6. Advanced decomposed stem tissue on a queen palm. Photo by Raghuwinder Singh

Iron Fertilization – All the Green Without the Growth

When you think of fertilizing your lawn, iron may not be the first nutrient that comes to mind. After all, it's not part of the "big three" nutrients — nitrogen, phosphorus and potassium or N-P-K — listed on fertilizer bags. While that may be the case, iron is still an essential nutrient required by plants to complete their life cycles. Different from nitrogen, which drives growth (aka more mowing), iron plays a crucial role in maintaining the desirable deep green color that signals a healthy, well-maintained lawn.

Why Iron Matters in Turfgrass

Iron is essential for chlorophyll synthesis, the green pigment that allows plants to photosynthesize. Without access to adequate amounts of iron, turfgrass leaves can become chlorotic, turning yellow and even white. Iron deficiencies commonly show up in the younger leaves. This condition is known as iron chlorosis. While the turf may still be growing, its appearance suffers, and over time, limited chlorophyll production can reduce overall plant health.

Unlike nitrogen or potassium, iron is not very mobile within the plant, hence the symptoms appearing in newer foliage. This means it must be consistently available in the soil solution or applied directly to the foliage. The need for iron often increases in high-pH soils, during periods of rapid turf growth or under cool, wet conditions when root activity is reduced. So, is it just as simple as buying an iron-containing fertilizer and throwing it out in the yard? Not necessarily.

Heavy rates of foliar-applied iron applied during the heat of the day resulted in iron-toxicity on this creeping bentgrass putting green. Photo by Eric DeBoer

The Problem With Soil-Applied Iron Oxides

Many iron products available at garden centers contain iron oxide (Fe_2O_3 or Fe_3O_4), commonly known as rust. These forms are very stable in the soil and are, for all intents and purposes, unavailable to plants. When applied to your lawn, they may temporarily darken the soil surface or even stain sidewalks. Still, they do little to boost iron absorption or correct iron deficiencies in your grass. This is because iron oxide is not a plant-available form of iron; iron must be in a soluble form, such as Fe^{2+} (ferrous), to be plant-available. One analogy that works is thinking about our atmosphere being composed of approximately 78% nitrogen as N_2 gas; you'd think plants would never need nitrogen fertilizers, right? But N_2 is not a plant-available form of nitrogen. It's the same theory as with iron in the soil, it needs to be plant-available.

Unfortunately, certain characteristics of Louisiana soils tend to promote iron oxidation into these unavailable forms or result in compromised root function and less iron uptake over time. Even when iron is applied in a soluble form, it rapidly converts to Fe^{3+} (ferric), which can form insoluble hydroxides and oxides, essentially locking away the nutrient. This soil chemistry is the primary reason why granular iron products or iron-rich composts often fail to improve turf color, even if they contain plenty of iron by weight.

Iron Oxidation in Soil

When iron is in the ferrous (Fe^{2+}) state, it is soluble and available to plants. However, once exposed to oxygen in the soil, especially in well-aerated or high-pH environments, ferrous iron is quickly oxidized to ferric iron (Fe^{3+}). Ferric iron precipitates as insoluble iron hydroxide ($Fe(OH)_3$), which turfgrass roots cannot take up.

Several factors accelerate this process:

- **High pH (>7.0):** Increases iron oxidation and reduces solubility.
- **High oxygen content:** Well-aerated soils speed up conversion to unavailable forms. This is not very likely in the compacted, waterlogged soils common throughout the state.
- **Low organic matter:** Fewer natural chelators to keep iron soluble. This is more likely on new building sites where topsoil was stripped away.
- **Excess phosphorus or calcium:** These elements can bind with iron, making it less available.

These conditions can be found in many residential and urban lawns in Louisiana, particularly in areas where irrigation water has high bicarbonate content or where soils have been disturbed or compacted during construction.

Why Foliar Iron Applications Work Best

Due to the challenges associated with soil-applied iron, foliar feeding is the most efficient strategy for delivering iron to your lawn. Foliar iron treatments bypass the soil entirely, allowing the nutrient to be absorbed directly through the leaf cuticle and used almost immediately.

Chelated iron products, such as Fe-EDTA, Fe-EDDHA and Fe-DTPA, are especially effective in foliar sprays. These formulations keep iron in a soluble form long enough for the plant to absorb it. Liquid iron sulfate can also be used, although it may have a higher risk of leaf burn if applied at high rates or under hot conditions.

Visible results from a foliar iron application often appear within 24 to 48 hours as the turfgrass green-up intensifies. This response is not due to increased growth but to enhanced chlorophyll production. Foliar iron does not stimulate excess growth like nitrogen does, which makes it an excellent option during summer months when excessive growth could promote disease or require more mowing.

Best Practices for Applying Iron

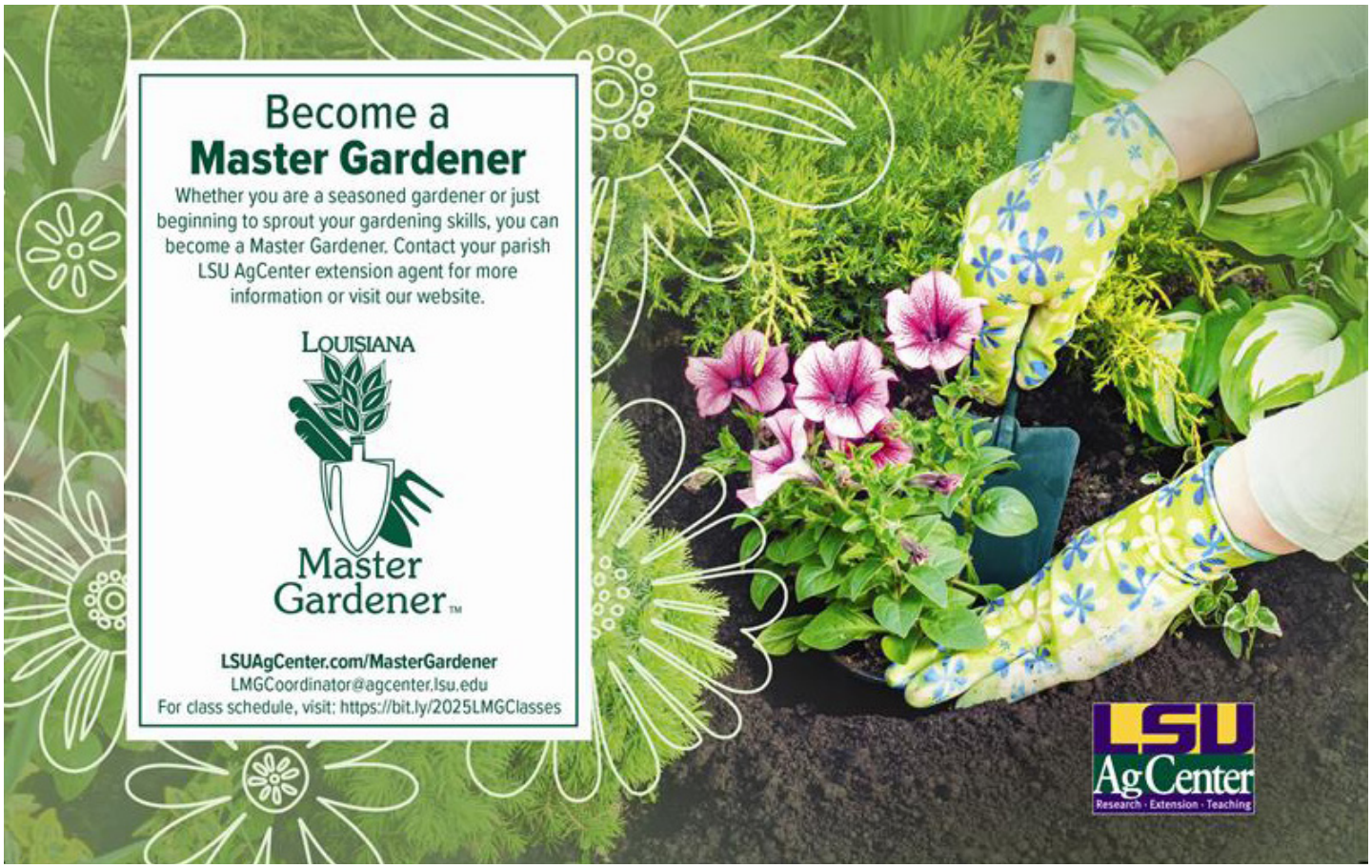
When using iron on turfgrass in Louisiana, keep these practices in mind:

- Choose correct formulations: Chelated iron or iron sulfate solutions are most effective. If applying to soil, make sure to use a chelated form.
- Avoid granular oxide forms: These are largely unavailable and wasteful.
- Apply in the morning or evening: Cooler temperatures reduce the risk of leaf burn.
- Repeat as needed: Foliar iron benefits are temporary, typically lasting two to three weeks. No need to overdo it though.
- Watch for staining: Iron sprays can stain concrete surfaces — use caution around sidewalks and driveways.

Conclusion

Iron fertilization can be a great tool for improving turfgrass color and aesthetic appeal in Louisiana lawns. However, understanding how iron behaves in the soil — and why foliar applications are typically more effective — is essential for getting the desired results. By choosing foliar iron sprays and applying them strategically, you can achieve that lush, dark green lawn without promoting unwanted growth or wasting resources.

Eric DeBoer, Ph.D.
Assistant Professor



School of Plant, Environmental and Soil Sciences
Horticulture Division
155 J. C. Miller Hall - LSU
Baton Rouge, Louisiana 70803

Upcoming Events:

- **May 15 – Louisiana Master Gardener Appreciation Day**. 9 a.m. to 1 p.m., Hammond Research Station, 21549 Old Covington Highway, Hammond. For more information or to register, e-mail Sara Shields at srshields@agcenter.lsu.edu.
- **May 16 – Louisiana Arborist Continuing Education Program**. 7:30 a.m. to 4 p.m., SWLA Small Business Development Center, 4205 Ryan St., Lake Charles. For more information or to register, visit https://LSUAgCenter.com/arborist.
- **May 23 – Louisiana Arborist Continuing Education Program**. 7:30 a.m. to 4 p.m., LSU Alexandria, 8100 Highway 71 South, Alexandria. For more information or to register, visit https://LSUAgCenter.com/arborist.
- **June 25 – Botanical Bazar**. 5 p.m. to 8 p.m., H. Rouse Caffey Rice Research Station, 1373 Caffey Road, Rayne. For more information or to register, e-mail Jeremy Hebert at jphebert@agcenter.lsu.edu.
- **July 2 – Watermelon Festival**. 5 p.m. to 8 p.m., Sugar Research Station, 5755 LSU Ag Road, Saint Gabriel. For more information or to register, e-mail Ashley Barfield at abarfield@agcenter.lsu.edu.
- **July 18 – Hammond Research Station Field Day**. Hammond Research Station, 21549 Old Covington Highway, Hammond. For more information or to register, e-mail Damon Abdi at dabdi@agcenter.lsu.edu.
- **Aug. 29 – Louisiana Arborist Continuing Education Program**. 7:30 a.m. to 4 p.m., ULL Student Union, 104 East University Circle, Lafayette. For more information or to register, visit https://LSUAgCenter.com/arborist.
- **Sept. 5 – Louisiana Arborist Continuing Education Program**. 7:30 a.m. to 4 p.m., Red River Research Station, 262 Research Station Drive, Bossier City. For more information or to register, visit https://LSUAgCenter.com/arborist.

School of Plant, Environmental and Soil Sciences
155 J. C. Miller Hall - LSU, Baton Rouge, Louisiana 70803
225-578-4070; Fax: 225-578-1068

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