

Horticulture Tips

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Oklahoma Cooperative Extension Service
Division of Agricultural Sciences and Natural Resources
Oklahoma State University

Saving Water in the Landscape

Malarie Gotcher and Justin Quetone Moss

Spring is upon us! With the change of seasons comes an increase of outdoor water usage for irrigation, gardening, and recreation. Up to 50% of water applied during midday to lawns and gardens is lost through evaporation and runoff. Here are a few tips to help conserve water outdoors.

- **Conduct an irrigation system checkup.** Check for leaks, broken sprinkler heads, and clogged heads. Conduct an irrigation audit to determine uniformity and make sure you're not overwatering (OSU CES Fact Sheet [HLA-6610](#)). Observe your irrigation system to ensure it's not watering streets or sidewalks.
- **Install a rain sensor.** A rain sensor turns off your irrigation system during a rain event to help reduce water waste.
- **Consider upgrading to a "Smart" controller.** Soil moisture or weather based controllers automatically adjust the irrigation schedule to provide the correct amount of water your landscape needs.
- **Water at the right time and only when needed.** The best time to water is early morning or evening when the Oklahoma winds are calm and the temperature is cool. This will reduce water loss from evaporation. Also, allowing the soil to dry between watering allows plants to develop strong, deep roots.
- **Mulch!** Mulch maintains soil moisture, prevents weeds, reduces soil erosion, and can help improve soil quality as it decomposes. Maintain a 2 to 3 inch layer around established trees, shrubs, and bedding plants. Avoid piling too much mulch around the base of trees since it can hold moisture and encourage trunk rot.
- **Redesigning your landscape? Consider a drought resistant garden.** Drought resistant landscapes can be attractive water saving landscapes ([L-332](#)). Drought tolerant native or introduced plants can be low maintenance and require less water ([L-333](#)).

Garden Tips for April

David Hillock

Fruit and Nut

- Don't spray insecticides during fruit tree bloom or pollination may be affected. Disease sprays can continue according to schedule and label directions. ([EPP-7319](#))
- Control cedar-apple rust. When the orange jelly galls are visible on juniper (cedar), following a rain, begin treating apple and crabapple trees with a fungicide. ([EPP-7319](#), [EPP-7611](#))
- Fire blight bacterial disease can be controlled at this time. Plant disease-resistant varieties to avoid diseases.
- Continue spray schedules for disease prone fruit and pine trees.

Tree and Shrub

- Proper watering of newly planted trees and shrubs often means the difference between success and replacement.
- Remove any winter-damaged branches or plants that have not begun to grow. Prune spring flowering plants as soon as they are finished blooming. ([HLA-6404](#), [HLA-6409](#))
- Control of powdery mildew disease can be done with early detection and regular treatment. Many new plant cultivars are resistant. ([EPP-7617](#))
- Leaf spot diseases can cause premature death of foliage and reduce plant vigor.

Flowers

- Most bedding plants, summer flowering bulbs, and annual flower seeds can be planted after danger of frost. This happens around mid-April in most of Oklahoma. Hold off mulching these crops until spring rains subside and soil temperatures warm up. Warm-season annuals should not be planted until soil temperatures are in the low 60s.
- Harden off transplants outside in partial protection from sun and wind prior to planting.
- Let spring flowering bulb foliage remain as long as possible before removing it.

Vegetables

- Wait a little longer for it to warm up before planting cucurbit crops and okra.
- Plant vegetable crops in successive plantings to ensure a steady supply of produce rather than harvesting all at once.
- Cover cucurbit crops with a floating row cover to keep out insect pests. Remove during bloom time.
- Watch for cutworm damage and add flea beetle scouting to your list of activities in the vegetable garden.

Landscape - General

- Hummingbirds arrive in Oklahoma in early April. Get your bird feeders ready using 1 part sugar to 4 parts water. Do not use red food coloring.
- Keep the bird feeder filled during the summer and help control insects at the same time.
- Lace bugs, aphids, spider mites, bagworms, etc. can start popping up in the landscape and garden later this month. Keep a close eye on all plants and use mechanical, cultural, and biological control options first.
- Be alert for both insect pests and predators. Some pests can be hand picked without using a pesticide. Do not spray if predators such as lady beetles are present. Spray only when there are too few predators to be effective.

Lawn

- Warm-season grass lawns can be established beginning late April from sprigs, plugs or sod. ([HLA-6419](#))
- Fertilizer programs can begin for warm-season grasses in April. The following recommendations are to achieve optimum performance and appearance of commonly grown species in Oklahoma.
 - Zoysiagrass: 3 lbs N/1,000 sq. ft.
 - Bahiagrass: 3 lbs N/1,000 sq. ft.
 - Buffalograss: 2 - 3 lbs N/1,000 sq. ft.
 - Buffalograss/grama mixes: 3 lbs N/1,000 sq. ft.
 - Bermudagrass: 4-6 lbs N/1,000 sq. ft.
 - Centipedegrass: 2 lbs N/1,000 sq. ft.
 - St. Augustinegrass: 3-6 lbs N/1,000 sq. ft.

When using quick release forms of fertilizer, use one pound of actual nitrogen per 1,000 sq. ft. per application; water in nitrate fertilizers. ([HLA-6420](#))

- Mowing of warm-season lawns can begin now ([HLA-6420](#)). Cutting height for bermudagrass and zoysiagrass should be 1 to 1½ inches high, and buffalograss 1½ to 3 inches high.
- Damage from Spring Dead Spot Disease (SDS) becomes visible in bermudagrass ([EPP-7665](#)). Perform practices that promote grass recovery. Do not spray fungicides at this time for SDS control.
- Grub damage can be visible in lawns at this time. Check for the presence of grubs before ever applying any insecticide treatments. Apply appropriate soil insecticide if white grubs are a problem ([EPP-7306](#)). Water product into soil.

Garden Planting Guide for Warm-Season Vegetables

Vegetable	Time to Plant*	Days to Harvest	Method of Planting
Beans, Lima	April 15 – 30	90 – 120	Seed
Beans, Green or Wax	April 10 – 30	50 – 60	Seed
Beans, Pole	April 10 – 30	60 – 90	Seed
Cantaloupe	May 1 – 20	80 – 100	Seed or Plants
Cucumber	April 10 – 30 or later	50 – 70	Seed or Plants
Eggplant	April 10 – 30	80 – 90	Plants
Okra	April 10 – 30 or later	60 – 70	Seed
Pepper	April 10 – 30 or later	90 – 110	Plants
Pumpkin	April 10 – 30	90 – 120	Seed
Southern Pea	May 1 – June 10	85 – 100	Seed
Squash, Summer	April 10 – 30 or later	40 – 60	Seed or Plants
Squash, Winter	May 15 – June 15	110 – 125	Seed or Plants
Sweet Corn	March 25 – April 30	80 – 100	Seed
Sweet Potato	May 1 – June 10	100 – 120	Plants
Tomato	April 10 – 30	70 – 90	Plants
Watermelon	May 1 – 20	90 – 120	Seed

*These dates indicate planting times from southeast to northwest Oklahoma. Specific climate and weather may influence planting dates. For cool-season vegetables, the soil temperature at the depth where the seeds are planted should be at least 40°F.

Blossom End Rot – A Calcium or Water Problem?

Jim Shrefler

It is getting close to the time that we begin to see tomato plants for sale in garden centers and farm and feed stores. Gardeners and farmers are anxious for planting time to arrive but are also wondering what problems they might encounter this year. For many, one of these is blossom end rot (BER).

For most people who have dealt with BER the first thing that comes to mind is “Calcium Deficiency”. While this is true, it is also somewhat misleading. This is because BER may occur in soils that are low in calcium as well as in soils with adequate calcium. So, while soil calcium can be an issue, it is very often not a causal factor. With BER the deficiency is in a specific part of the plant, the fruits, and not in the overall plant. An additional note on the term “Blossom End Rot” is that it can be argued that it is not a “rot”, which implies some other organism is causing a breakdown. With BER, what seems to happen is that tissue dies due to inadequate calcium.

While it is interesting to know something about the cause, what the grower wants to know is how to cure it. Blossom end rot is a widespread concern. Looking at publications available from Land Grant Universities throughout the country you can find many fact sheets on the topic. Some of these are brief and to the point while others are lengthy and detailed. These discussions mention a number of factors that can contribute to BER including large fluctuations in soil moisture, water stress, salinity, root damage from diseases, using ammonium nitrogen sources, cold soil, damage to roots by cultivation and ratios of calcium to other nutrients in the soil. In addition to the number of factors that can be involved, what makes things more confusing is that these various information sources do not always emphasize the same approaches to take to prevent this problem. Put yourself in the shoes of a fellow who just wants to grow a few tomatoes in the backyard. Some might read some of this literature and conclude that there is maybe no practical solution to the problem.

To understand what is happening when BER shows up it may be helpful to consider a similar condition in lettuce called “tip burn”. It is also a calcium deficiency that occurs on inner leaves of head lettuce. This condition can be induced by growing lettuce in a closed chamber where there is little evapo-transpiration occurring once the relative humidity in the chamber reaches 100%. Under these conditions water uptake by the plant is very slow. Unlike other mineral nutrients, calcium uptake by roots is entirely through water flow from soil to plant. When water uptake is reduced so is calcium uptake. A similar situation occurs with tomato and other fruiting vegetables, when water uptake is reduced so is calcium uptake. The bottom line is that calcium uptake is closely tied to water uptake.

There is also a smoky mirror aspect to this. Why does BER occur when the rest of the plant seems healthy? This is probably a matter of the transpiration stream that moves calcium through the plant being favored more by leaves than to flowers and fruits. When conditions are ideal, all plant parts get their share of calcium. When the system is “stressed”, developing fruits may not get enough.

What can growers do to reduce the chance of BER? There is nothing that can be done to guarantee that BER will not show up. However, the following practices will reduce the chances of its occurrence.

- Soil test and fertilize based on the recommendations provided. Use nitrate nitrogen sources.
- Use healthy plants that are not hardened off excessively. Put several inches of stem below soil to encourage more adventitious roots, those roots that arise out of tomato vines that contact soil.
- Plant into warm soil. Black plastic mulches on raised beds that are installed a few weeks in advance will warm soils earlier. This will also reduce the possibility of waterlogging in the root zone and, in general, favor more uniform soil moisture conditions over time.
- Use drip irrigation to keep soil moisture uniform.
- Some varieties are less susceptible than others. Ask suppliers about these.
- In windy locations, use windbreaks to protect plants from wind exposure.
- Keep tillage between rows very shallow.

Using these practices should prove helpful. The good thing is that BER is usually temporary and is less of a problem once plants become well developed.

Fruit Elimination

Kim Toscano

With the trees leafing out and starting to flower, we receive a number of calls regarding fruit elimination on Sweet Gum Trees or *Liquidambar styraciflua*. American Sweet Gum is a deciduous tree native to the southeastern United States. Like many trees, it produces fruits that some people find undesirable. One of the best ways to avoid unwanted fruits is to select sterile cultivars when purchasing trees and shrubs. There are ways to eliminate fruit from established trees.

Florel® brand Growth Regulator is a product registered to reduce or eliminate undesirable fruit development on many ornamental trees and shrubs such as apple, cottonwood, crabapple, flowering pear, sweet gum and sycamore. It also works on many other species that produce nuisance fruit.

Application must be made prior to fruit set; apply at the mid to full-bloom stage in sufficient water to wet (do not spray to run off). Good spray coverage is essential for complete fruit elimination. Application made too early or too late will also not be effective. Apply at 1 quart per 10 gallons of water (3 oz./gallon). The amount of spray used will depend upon the size of the tree. Temperatures at the time of application should be between 65°F and 95°F for the best results. Do not apply to trees that are under stress from disease, high temperatures, drought, etc.

Florel® brand Growth Regulator is the only product registered in the U.S. to control mistletoe. It can be used on ornamental deciduous trees to control leafy mistletoe and on conifers for dwarf mistletoe control. On deciduous trees, the ideal time to apply is in the spring just before leaf-out. Daytime temperatures must be above 65°F for good results. Spray only the individual bunches of mistletoe, not the entire tree. Complete kill will not be achieved, but it should be about four years before you will have to retreat. On conifers for dwarf mistletoe, apply in early summer prior to seed dispersal.

Florel® costs around \$62 per gallon, so it can be rather expensive. Good coverage and proper timing are essential to effective control. For larger, mature trees consider hiring a tree care professional to insure good coverage. Tree care professionals can also use a microinjection system called Snipper® that promotes premature abscission of flowers; however, this treatment is also quite expensive, and like Florel, must be done each year to eliminate unwanted fruit.

In the case of existing sweet gum trees, it may be best to just deal with the spiky balls. They also can be rather useful. Use them to decorate wreaths, fill the bottom of planters or chip them up and mix with mulch. Some gardeners use them whole around the base of plants to deter diggers.

Common Questions about Composting

David Hillock

What is Compost? – Compost is a natural dark brown humus-rich material formed from the decomposition or breakdown of organic materials such as leaves, grass clippings, vegetation, vegetable food scraps, and twigs. Bacteria, worms, fungi, and insects need water and air to use the organic materials as food and decompose them.

What is the Procedure to Make Compost? – Organic materials are placed in alternating green and brown layers in a container, bin or pile. Alternating green and brown layers of material help assure the correct carbon and nitrogen amounts. With water and air, bacteria and insects use the materials as a food and energy source. The bacteria need water to live and grow. This process generates heat from 140 to 160°F. Aeration is done by turning the container or pile of material. The more turning, the more air the bacteria have available, and the faster the process works. When the temperature decreases, the process is complete.

How is a Compost Bin Made? – Bins may be made in various sizes and with a variety of materials. The following easy steps describe compost pile construction:

1. Construct a confining perimeter with 3' to 5' diameter and 4' high. Materials may be concrete blocks, railroad ties, wire mesh, boards, old pallets, other fencing material, barrel, or garbage can with holes for air
2. Layer green (wet) and brown (dry) vegetable matter (1 part green to 3 parts brown)
3. Wet thoroughly, then sprinkle with water periodically
4. Turn every week to speed the decomposition process

How Long Does it Take Compost to Form? – The time of completion will vary according to the type and amount of materials used, the climate, the size and type of bin or pile used, and the amount of aeration or turning of the pile. With the correct carbon to nitrogen ratio, water, and air, compost should be ready to use in 4-6 months. If the pile is turned more frequently, the compost should be ready more quickly. The smaller the individual pieces of material in the pile, the more surface area the microorganisms have to work on and the faster the materials will decompose. Shredding or chipping branches decreases the decomposition time.

When is the Compost “Done?” – Compost is ready when the temperature of the pile falls to ambient levels, the material is dark, crumbles easily, pieces are small and there is no odor.

How can the Process be Sped Up? – Mixing frequently provides more air for the bacteria. Keep the material moist with soaking about once a week. Break the materials into smaller pieces.

What can be Composted?

- Most yard waste such as grass clippings, leaves, twigs, excess vegetation
- Non-fat containing food scraps
- Twigs or chipped branches
- Coffee grounds, tea leaves
- Almost any organic kitchen waste like food scraps and paper can be composted

What cannot be Composted?

- Large branches
- Fatty foods and grease, meats, dairy products, fish
- Bones
- Synthetic products such as plastics
- Diseased plants
- Weeds and vegetables that produce abundant seeds
- Pet or human waste

Meat, bones and foods high in fats and oils can generate foul smells and attract insect and animal pests. When the compost process is done properly it should generate enough heat to kill most weeds and many weed seeds. Weeds with large storage roots like nutsedge and greenbriar should be left out or dried and chopped into small pieces to lessen chance of survival.

Can Composted Pecan Leaves be Safely Used in the Garden? – While pecans are related to black walnut, which can secrete a compound deadly to some garden and landscape plants, any toxic substances in pecan and other plant leaves is broken down and leached out through the composting process. So there should be no reason to worry about using the compost in the garden.

Should a Compost Activator or Starter be used? – Compost activators (packaged dehydrated bacteria) and starters (usually quick forms of nitrogen) are generally not needed to successfully compost. The organic matter and soil used in a compost pile have more than enough microorganisms present to start the compost process. Adding a scoop of garden soil to the

compost will also work sufficiently as a compost activator. Small amounts of nitrogen fertilizer can be added to piles with high carbon materials, but generally are not needed. If nitrogen seems to be lacking, just add some more green material from the garden.

Why Make Compost?

- Recycle natural materials
- Reduce amount of chemical fertilizer used
- Reduce amount of material going to landfills
- Reduce landfill tipping fees for individuals or communities
- Prolong landfill life

What can Compost be used for?

- Improve soil structure and texture
- Increase water-holding capacity of sandy soil
- Loosen clay soil and improve drainage
- Add nutrients to improve soil fertility
- Aid erosion control
- Potting soil
- Mulch around landscape plants to retain moisture

For more information about composting and improving garden soils see OSU fact sheets [BAE-1744 Backyard Composting in Oklahoma](#), [BAE-1742 Vermicomposting–Composting with Worms](#), [L-252 Don't Bag It: Leaf Composting](#), [HLA-6007 Improving Garden Soil Fertility](#), and [HLA-6436 Healthy Garden Soils](#).

National Arbor Day April 26, 2013

David Hillock

Help celebrate National Arbor Day by planting a new tree in your landscape or community. Trees properly planted and maintained offer a wide variety of benefits. Trees affect the well-being and appearance of Oklahoma communities. They contribute to an atmosphere of peace of mind and relaxation. Many people visualize the ideal community as one with tall, spreading, stately trees lining streets of well-kept homes and prospering businesses. One of the most effective ways to improve community appearance is to plant trees. Trees also increase recreational opportunities and local property values and aid in reduced noise pollution.

In addition to the aesthetic qualities of trees, they perform many environmentally important functions. Trees remove carbon dioxide from the atmosphere and replace it with oxygen; they also remove air pollutants and dust particles. They buffer climatic extremes. Trees save energy by providing shade for people and buildings and by serving as wind breaks; trees also provide significant stormwater retention benefits and provide habitat for wildlife.

For information about proper planting techniques, see OSU fact sheet [HLA-6414 Planting Trees and Shrubs](#). To learn more about Arbor Day activities and projects go to <http://www.arborday.org/>.

Upcoming Horticulture Events

Current Challenges in Horticulture and Landscape Architecture Conference

June 4, 2013

Wes Watkins Center – Stillwater, OK

This conference will discuss timely challenges that we are facing in both aforementioned disciplines. Exceptional drought, a potentially warming climate and other matters will be tackled with suggestions for mitigating and/or coping with these problems.

GardenFest

September 21, 2013; 10 AM to 4 PM

The Botanic Gardens at OSU – Stillwater, OK

Join us at The Botanic Garden at OSU for our annual GardenFest. The theme for 2013 is "Art in the Garden". GardenFest is a fun filled day of art and gardening ideas, demonstrations, children's activities and merchandise.

Indigenous Plant Materials Conference

October 10, 2013

Wes Watkins Center – Stillwater, OK

This conference will highlight underutilized ornamental plant materials, both native to Oklahoma and/or anywhere else in the Lower 48, and their possible uses in the green industry and ultimately in our landscapes.

Native American Horticulture Conference

November 21, 2013

Wes Watkins Center – Stillwater, OK

This conference will provide a horticulture overview of Native Americans' contribution to both historical and current-day foods, ornamentals and medicine.

For more information about upcoming events, please contact Stephanie Larimer at 405-744-5404 or stephanie.larimer@okstate.edu.