KANSAS STATE UNIVERSITY

Extension
Butler County

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The Grapevine

Beauty into a Beast

The Callery Pear has started to bloom, and its beautiful white flowers are scattered throughout towns and the countryside. Unfortunately, it is still a reminder that sometimes the best intentions go awry. Originally, this pear tree was brought to the United States in the early 1900's to help develop resistance to fireblight among the common pear tree. Through this process, one particular tree stood out for its shape, blooms, and fruitlessness. This tree eventually became what we now know as the Bradford pear. Unfortunately, as more cultivars were developed, these once fruitless trees began to cross-pollinate and produce fruit, leading to the current situation of pear trees spreading across the area. Due to the issues these trees are causing, in February of this year, the Kansas Secretary of Agriculture signed a quarantine order effective January 1, 2027, prohibiting the movement of Callery Pear in Kansas. Current trees do not have to be removed, but new trees cannot be brought in or purchased. If you want a spring-blooming tree, there are several other options, including the native redbud, native blackhaw viburnum, crabapple, serviceberry, American Plum, yellowwood, and native flowering dogwood. If you have a Callery pear tree, it might be time to start planning to replace and remove it. Unfortunately, this weekend's cold temperatures may have killed the bloom buds for this spring. For information on controlling callery pear trees, check out the Kansas Forest Service website.

Lightning Damage to Trees

Spring and summer storms can wreak havoc on our landscaping. Branches can be broken and trees uprooted by high winds, leaves and branches damaged by hail, and last but not least, trees can be struck by lightning. Lightning strikes to trees can be both spectacular and deadly, though the two don't necessarily go together. The effects of lightning strikes on trees are highly variable, and trees should be managed based on several factors.

Photo credit: G. Keith Douce, University of Georgia

The average thunderstorm generates one lightning strike every 30 seconds during a 50-minute period. It's estimated that 6% of lightning strikes will hit a tree, mostly in rural or woodland areas of the state; however, it's not uncommon for trees in urban settings to be hit as well. Lightning strikes occur when negative charges descend from the bases of storm clouds along long chains called *stepped leaders*. From the ground, a positive charge is drawn upward by the negative charges in chains called *streamers*. Streamers are most prevalent on the tallest geographic features, including mountains, buildings, boats, and trees. When the two paths meet, an electrical connection is made, and a rapid exchange of charges occurs, which generates light and heat, called *lightning*. Lightning follows the path of least electrical resistance through the best conductor available. Wood is generally not a good conductor; however, the moisture in trees, in the form of water and sap, attracts lightning. Trees are often the tallest structures and decent conductors, so they are natural lightning rods. The tallest trees—single specimens in open fields or trees on hilltops—have the most significant potential for strikes.

Lightning damages trees by the sheer heat of the electricity passing through them. Lightning carries up to 100 million volts and reaches temperatures of 50,000 degrees, or five times the sun's temperature. In trees, these extreme temperatures boil water and sap, generating steam and causing bark and wood fibers to explode. Lightning can strike a tree once or multiple times. It can travel from the top of the tree to its roots, skip down through branches, or only affect a portion of a trunk or branch. Lightning follows the best conductor within trees, possibly through the sap-conducting phloem just under the bark or deeper within the water-conducting woody xylem. When I lived in North Dakota, I saw a lightning strike follow the side of a tree, ending in a small nail at the base of the trunk, used to identify the tree.

Photo credit: Joseph O'Brien, USDA Forest Service

Damage can range from bark being blown out along a narrow strip, exposing the interior wood, to more extreme cases, such as debarking trees completely or causing deep cracks. The immediate damage within trees is dead tissues along the path of the lightning strike and exposure of interior woody tissues to decay and insect attacks. There can also be invisible damage as the super-heated charge disrupts functions in larger portions of the trunk or roots. In these cases, trees might appear to die suddenly, with leaves wilting and turning brown days after the event.

Unfortunately, there are no fixed guidelines for evaluating a tree's likelihood of survival from a lightning strike. Instead, assess the extent of the outward damage and consider how trees will regrow around wounds. When assessing trees, it is important to consider the scope of the damage, tree health, and tree species. These factors affect each tree's ability to grow around wounds and react to inevitable decay. Assess the width, depth,

and vertical extent of the lightning damage within the canopy. Note that lightning can follow a direct path, spiral down the trunk, jump from branch to branch, or blow trees apart. If more than one-third of the canopy is blasted away with significant lightning scars (one-third or more of the diameter), consider immediately removing the tree. Unless the tree has severely cracked or split branches/trunk, or broken hanging branches in the canopy, taking a wait-and-see attitude is recommended to determine if the tree can recover. A lightning-struck tree, even one with minor apparent damage, may not survive - only time will tell. Waiting a few months to see what happens is necessary.

Consider these guidelines when assessing:

- Split trunk – the tree's trunk is partially or totally split apart. The structural integrity of this tree is lost, and inevitable future wood rot decay will cause it to deteriorate further. Remove the tree.
- Deep crack(s) on main trunk – vertical cracks with a depth of 1/3 or more of the tree's diameter. Significant damage to the inner wood; structural defects likely; future wood rot inevitable. Remove the tree if it is near high-value targets, such as the home, garage, driveway, or busy streets.
- Deep crack(s) on main branches – cracks with a depth of 1/3 or more of the branch diameter. Branch removal or shortening is recommended to lighten the weight on the branch.
- Canopy damage – if more than 1/3 of the canopy is lost, consider removing the tree.
- Bark damage/loss
    - Less than 1/3 of the tree's circumference – narrow strips of bark blown off the tree. Monitor the tree for signs of internal damage and prevent drought stress as it recovers.
    - More than 1/3 of a tree's circumference – the tree's ability to move water during dry periods, opportunistic pest attack, and future wood rot are serious concerns. Remove the tree, unless it is a very high-value species, especially if there are high-value targets nearby.

If your tree only had narrow or shallow scarring in the bark, the lightning strike is likely survivable for the tree. If you decide to keep a damaged tree, use a sharp utility knife to trim off any loose bark back to healthy tissue so it can heal. If bark is still attached and the underside (growing cells) is still moist, tack the bark in place with nails and cover the damaged area with burlap or plastic for several months to aid reattachment. If it's safe to do so, prune off any broken branches or hire an arborist to complete the work. Strikes can also damage water- and sap-conducting vessels, pushing trees into drought-like stress. These stressors can cause the tree to emit compounds that attract insects that prefer to feed on stressed trees. Lightning strikes strip away the bark, which protects the interior woody tissues from opportunistic decay and insects. Preventative pesticide applications can protect the tree from opportunistic pests, including many species of native borers, while it recovers. Water the tree when conditions are dry to prevent compounding the tree's problems with drought stress, then cross your fingers and wait. At this time, there is no need to fertilize the tree in an effort to get the tree to "grow out of the damage".

Lightning is a beautiful feature of storms, but it can also be deadly to both trees and humans. If your tree is hit by lightning this spring, use these tips to assess the damage to your tree and its chances of survival after the storm. Unfortunately, trees with bark damage similar to the photo above will not survive the lightning strike, but many other trees can survive, and some even thrive after being struck by lightning.

Question of the Week- Cold Damage to Fruit

February and early March have been a wild-weather month, with very warm temperatures and storms early, and then yesterday we were hit with very cold weather. All that warmth led to some of our plants starting to try to leaf out, and my peach tree had even started blooming before the cold front hit on Sunday. If your fruit trees were among the ones that had started to bud out last week, you might be wondering if you will still get fruit this spring. Apricots and Peaches are the most common fruit plants to try to bloom early and get caught by a frost. It is important to note that an extended warm spell before the cold snap may cause greater damage due to a loss of cold hardiness. Below are some tables to give you an idea of how cold-hardy fruit tree buds are at various stages of bud development for apricots and peaches.

Apricots

Stage	10% Kill (Degrees F)	90% Kill (Degrees F)
First White	24	14
First Bloom	25	19
Full Bloom	27	22
In the Shuck	27	24
Green Fruit	28	25

Peaches

Stage	10% Kill (Degrees F)	90% Kill (Degrees F)
Swollen Bud	18	2
Half-inch Green	23	5
Pink	25	18
Bloom	27	24
Petal Fall	28	25
Fruit Set	28	25

Based on the temperature chart, most of our peach and apricot buds were damaged by the cold last week, and there is a good chance we won't get any peaches on my tree this year. It is possible to protect blossoms from freezing by covering the tree with a bedspread, blanket, or similar fabric. The material should reach the ground so that the soil's heat is captured, keeping the buds warm. Old-fashioned Christmas lights distributed through the tree, either by themselves or under a blanket, will help provide added protection. I considered using this technique on my peach tree over the weekend, but I ultimately decided that the damage the frost blanket in the high winds would cause to the blooms and the tree would be worse than losing this year's crop. Sprinkling the tree with water throughout the freezing period can also protect the blossoms, but it is a dangerous option. Sprinklers should be started before the temperature drops to freezing to be sure ice does not block the garden hose or water line. Continue until the temperature warms. With this protection method, there is the potential to create an ice storm. If temperatures remain below freezing for several hours, ice will accumulate on the branches and limbs. While sprinklers are effective, ice buildup on the branches might cause more damage to the tree than the cold temperatures. If you are concerned that cold temperatures may have damaged your buds, check them for any signs of damage. To check for low-temperature injury to fruit buds or blossoms, use a sharp knife and cut them in half longitudinally (from top to bottom). If the tiny seed in the center is white to cream-colored, no damage has been done. But if the seed in several buds or blossoms is dark brown or black, it has been killed.

Upcoming Events

Garden Hour Webinars:

April 1st- April Showers, Rain Garden Flowers

May 6th- Natives vs. Cultivars--Making Informed Choices for Your Landscape

June 3rd- Maximizing Success with Extension Resources

Upcoming Events:

March 26th-Simple Morea Classes on Kokedama and Planted Wall Hanging

March 28th at 9:30 am- Rain Barrel Clinic at the Whitewater Library

April 8th at 12:15 pm- Companion Vegetable Planting at the Andover Public Library

March Gardening Calendar

Vegetables and Fruits

- If there are no soil test results, fertilize the garden with 1 to 2 pounds of 10-10-10 per 100 square feet
- Plant:
  - Potatoes, peas, onions, lettuce, and other salad crops
  - Asparagus, rhubarb, and strawberries
  - Broccoli, cauliflower, and cabbage in late March
- Start seeds inside for tomatoes, peppers, and warm-season vegetables
- Apply dormant oil to fruit plantings to reduce scale and mite insects
- Make a fungicide application to control peach leaf curl
- Finish pruning fruit trees, grapes, raspberries, and blackberries
- Remove mulch from strawberries when growth begins

Flowers

- Plant pansies, snapdragons, calendulas, and other cool-loving annuals
- Clean up the perennial bed by cutting back foliage and removing the winter mulch layer. Divide and plant perennials in the garden
- Plant new roses. Remove winter mulch from existing roses and prune
- Cut ornamental grasses back to within 3 to 5 inches of the ground
- Fertilize spring flowering bulbs such as tulips and daffodils
- Cut seed pods from spent bulbs
- Help control iris borers by destroying old foliage before new growth starts
- Unwrap mail-order plants immediately and keep them cool and moist until planting

Lawns

- Spot spray for dandelions, henbit, and chickweed.
- Apply crabgrass preventer in late March through mid-April for best results
- Seed thin areas in tall fescue lawns
- If no fall application of fertilizer was made, fertilize tall fescue
- Mow grass ½ inch lower to remove winter debris. Do not scalp

Trees and Shrubs

- Pruning:
  - Prune trees, except birch, maple, and walnut, which are best pruned after leafing out
- Wait to prune spring-flowering shrubs until after they bloom
- Mulch tree and shrub plantings up to 4 inches deep, keeping mulch away from trunks
- Plant new trees in the landscape
- Remove tree wraps from young trees for summer growth
- Rake and clean groundcover plantings

Miscellaneous

- Sharpen and repair garden tools

ANNUAL BUTLER COUNTY Lawn & Garden Show

GROW & BLOOM IN BUTLER

Master Gardeners of Butler Co., KS

FREE Admission

- Children's activities
- Concessions
- Exhibits & vendors
- Plants for sale!
- Professional presentations
- Seed swap
- Soil test service available!
- & More!

DOOR PRIZES!

Event Details

Saturday, April 11th, 9 AM - 5 PM
Sunday, April 12th, 11 AM - 4 PM

Butler County Community/4-H Building
200 N. Griffith, El Dorado

K-STATE Research and Extension
Master Gardener
Butler County

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