Video of the Week: How to Test Your Soil for Nutrients

EVENTS
Kansas Forest Service Tree, Shrub Seedling Sale, September 1 - October 15

Kansas Orchid Society Fall Show and Sale, November 6, 2021

This Month’s K-State Garden Hour Webinar: Embrace your Landscape's Wild Side - Supporting Backyard Birds
Wednesday, October 6; Noon – 1:00pm CST
Presented by: Chuck Otte, Extension Agent in Geary County
Join this free gardening webinar the first and third Wednesday of every month. Recordings are made available online, and a one-time registration is required participate in the live webinar series. To register, see upcoming webinars, and view previous webinars, visit: http://ksre-learn.com/KStateGardenHour

REMINDERS
• Add organic matter to vegetable garden this fall.
• Bring houseplants in if you haven’t already.
• Dig sweet potatoes

WOODY PLANTS
Atlas Cedars Suffering Dieback in South-Central Kansas

We have received a large number of contacts recently about Atlas Cedars that have suffered dieback during July and August in south-central Kansas. In some cases, the trees have had to top or bottom turn brown or the whole tree has collapsed. Though there can be a multitude of reasons for trees not to do well, the most likely reason for these trees is environmental stress.

Stress is cumulative. In other words, trees and shrubs can be affected by stresses that happened up to several years in the past. The primary cause of this year’s tree damage was likely the sharp drop in temperature during last fall. The extreme cold last February didn’t help anything but may not have been the major driver for the damage we are seeing this year.
Let’s look at last fall in more detail. The Wichita area went from a daytime high of 87 on October 22, 2020 to a low of 24 degrees on October 26. Unfortunately, trees were not hardened off before this happened. In other words, they were not ready for these cold temperatures. Trees that are marginally cold hardy such as Atlas Cedars are most likely to be affected.

A sharp drop in temperature may damage at least a portion of the phloem and the cambium. Remember the phloem carries food made in the leaves to all parts of the plants including the roots. The cambium produces new phloem and xylem. If the phloem and cambium are killed, the cambium cannot produce new, living phloem or xylem, and, therefore, the roots don’t receive the food needed to survive as food produced in the leaves cannot be transported to the roots. What about the xylem that carries water and nutrients from the roots throughout the plant? Why is the xylem still able to function when both the phloem and cambium have been killed?

The reason the tree can still distribute water to the top portion of the tree is due to how a tree grows and, specifically, how xylem works. Even in perfectly healthy trees, most of the xylem is dead. Portions of this dead xylem forms hollow tubes that carry the vast majority of water and nutrients throughout the plant. Though there are living xylem cells, the contents of those cells make them inefficient in moving water. Therefore, the functional portion of the xylem wasn’t hurt by the freeze because it was already dead. Since this xylem system still works and provides water for the tree, the tree can live for quite a period of time until the roots starve.

Trees so affected will not die immediately. First of all, a healthy root system has stored energy reserves that it can use to keep the tree alive. When those reserves are depleted, the entire tree or a portion of the tree will die very quickly. Usually this occurs during the summer following the year the damage occurred. That is what we saw this summer with the Atlas Cedars.

So, is there anything we can do now to help the trees? Those that collapsed are done for. Those that suffered lesser damage should evaluated as to whether they would be worth keeping once the dead is pruned out. Those that are should be watered to prevent further stress. Keep the soil moist but not waterlogged (Ward Upham)

**Pruning Trees and Shrubs in the Fall**

Pruning in August can stimulate new growth that is less hardy during the winter. But what about pruning at this time of year? Woody plants move sugars and other materials from the leaves to storage places in the woody portions of the plant just prior to leaf fall and we would like to maximize those stored energy reserves. Even pruning later in the fall can cause a problem by reducing the cold hardiness of woody plants. Dr. Rich Marini at Penn State Extension has written, “Based on everything that has been published we can conclude that woody plants do not attain maximum cold hardiness when they are pruned in the fall. Trees are affected more by heavy pruning than light pruning.” However, this does not mean that woody plants pruned in the fall will necessarily suffer winter damage. In most cases, I think we can get away with the old adage of “prune whenever your pruners are sharp.” However, damage can occur if we have a sharp drop in temperature before plants are completely hardened off. Also, marginally hardy
plants are more susceptible to winter damage, especially if pruned in the fall. Though light pruning and removal of dead wood are fine this time of year, you may want to delay severe pruning until spring.

Consider pruning to be “light” if 10% of less of the plant is removed. Dead wood does not count in this calculation. Keep in mind that even light pruning of spring-blooming shrubs such as lilac and forsythia will reduce flowers for next year. We normally recommend that spring-bloomers be pruned after flowering.

Shrubs differ in how severely they can be cut back. Junipers do not break bud from within the plant and therefore should be trimmed lightly if you wish to keep the full shape. Overgrown junipers should be removed. On the other hand, there are certain shrubs that can be pruned back severely during the spring. Rejuvenation is the most severe type of pruning and may be used on multi-stem shrubs that have become too large with too many old branches to justify saving the younger canes. All stems are cut back to 3- to 5-inch stubs. This works well for spirea, forsythia, pyracantha, ninebark, Russian almond, sweet mock orange, shrub roses, and flowering quince. Just remember that spring is the correct time to do this, not now. (Ward Upham)

Is It a Maple or an Oak?

Sometimes people are unsure on how to tell the difference between a maple and an oak. The easiest way is to look at how the leaves are arranged on the stem. Maples are opposite leaved and oaks are alternate. Opposite leaved plants such as maples and ash have leaves directly across from one another. Alternate leaved plants have leaves alternating up the stem; one on one side and the next, further up the stem, on the other. (Ward Upham)

FLOWERS

Clean up Iris Beds this Fall

Iris are known for a couple of common problems: a fungus disease known as iris leaf spot and an insect named iris borer. Though both cause problems in the spring, now is the time to start control measures. Both the fungus and eggs of the borer overwinter on old, dead leaves. Remove dead leaves and cut back healthy leaves by ½ this fall to reduce populations of these pests. Also remove other garden debris from the iris bed. This can significantly cut down on problems next spring. (Ward Upham)
MISCELLANEOUS

Fall is a Good Time for Soil Testing

Though we often think of soil testing as a spring chore, fall can actually be a better time. Soil-testing laboratories are often very busy during the spring resulting in a longer turnaround from submission to recommendations. Also, soils in the spring are often waterlogged, making taking samples difficult. If your soil test suggests more organic matter, fall is a much better season because materials are more available than in the spring (tree leaves), and fresher materials can be used without harming young tender spring-planted plants.

Begin by taking a representative sample from at least six locations in the garden or lawn. Each sample should contain soil from the surface to about 6 to 8 inches deep. This is most easily done with a soil sampler. Many K-State Research and Extension offices have such samplers available for checkout. If you don’t have a sampler, use a shovel to dig straight down into the soil. Then shave a small layer off the back of the hole for your sample. Mix the samples together in a clean plastic container and select about 1 to 1.5 cups of soil. This can be placed in a plastic container such as a resealable plastic bag.

Take the soil to your county extension office to have tests done for a small charge at the K-State soil-testing laboratory. A soil test determines fertility problems, not other conditions that may exist such as poor drainage, poor soil structure, soil borne diseases or insects, chemical contaminants or damage, or shade with root competition from other plants. All of these conditions may reduce plant performance but cannot be evaluated by a soil test. (Ward Upham)

Seed Stratification for Trees

Gardeners sometimes want to grow trees such as sugar maples, oaks and sycamores from seed. However, most woody plants produce seed that will not germinate immediately after harvest. Normally this is because of one of three reasons:
- Seed is immature and needs more time to develop;
- A mechanical barrier is keeping water from reaching the seed;
- A physiological block is inhibiting germination.

If the problem is only immature seed, the answer is simple. The seed simply needs time to complete development and does not require special treatment.
However, if the problem is a mechanical barrier or physiological block, the answer isn’t so simple. The mechanical barrier and/or physiological block require special treatments to prepare the seed for germination. One such treatment is stratification. Stratification is a process whereby seed is given the moisture and temperature conditions normally found in its natural environment during the fall and winter. Seeds that are shed in early fall often require a warm, moist stratification period before the seed will germinate. Those that drop later in the fall may respond to cool, moist conditions. In Kansas, the most common stratification needed is the cool, moist type. The amount of time required for stratification varies with the plant species. For example, red oak needs 30 to 45 days and sugar maple should have 60 to 90 days. These species require cool, moist conditions. If unsure of the amount of time required for a specific species, 3 to 4 months usually is sufficient.

For cool stratification, temperatures just above freezing are best, with a range between 35 and 45 degrees considered ideal. Temperatures higher and lower than this are less effective. The minimum temperature at which stratification occurs is reported to be 23 degrees, and the maximum is 62 degrees.

Stratification should be done in a medium that is moist but not soggy. If there is too little moisture, the seed coat does not take up the water needed. Too much reduces the amount of oxygen available to the seed. If peat moss is used, a ratio of 1 or 1 1/4 parts water to 1 part air-dried peat moss by weight is recommended. When wetting peat moss, use warm water, which is absorbed more quickly than cold.

Small amounts of seed can be stratified by placing the seed in moist peat moss inside a plastic bag and placing the bag in the refrigerator. Small seeds can be placed between two sheets of cheesecloth so they are not lost in the medium. Larger amounts of seed can be placed in a plastic container or wooden box. Place layers of seed between layers of moist sand or a mixture of sand and peat moss. Bury the container outside so the top is even with the soil surface, and cover with leaves or straw. Alternatively, the container may be placed in an unheated garage or root cellar.

(Ward Upham)

**Contributors:** Ward Upham, Extension Associate

---

Division of Horticulture  
1712 Claflin, 2021 Throckmorton  
Manhattan, KS 66506  
(785) 532-6173

For questions or further information, contact: wupham@ksu.edu OR cdipman@ksu.edu

This newsletter is also available on the World Wide Web at:  
http://hnr.k-state.edu/extension/info-center/newsletters/index.html

The web version includes color images that illustrate subjects discussed. To subscribe to this newsletter electronically, send an e-mail message to cdipman@ksu.edu or wupham@ksu.edu listing your e-mail address in the message.

Brand names appearing in this newsletter are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned.

K-State Research and Extension is committed to making its services, activities and programs accessible to all participants. If you have special requirements due to a physical, vision or hearing disability, or a dietary restriction please contact Extension Horticulture at (785) 532-6173.