

Horticulture 2019 Newsletter

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1712 Claflin, 2021 Throckmorton Plant Science Cntr.
Manhattan, KS 66506 (785) 532-6173

Video of the Week: [Protecting Roses for Winter](#)

UPCOMING EVENTS

Kansas Turf Conference in conjunction with KNLA
December 4, 5 & 6
Hilton Garden Inn, Manhattan



Mark the date to attend the Kansas Turfgrass Conference in conjunction with KNLA on December 4, 5 & 6 in Manhattan

The conference is an excellent way to learn about turf, nursery and landscape management, visit with old friends, network with new ones, and see all the latest equipment and supplies from local and national vendors.

The conference has been approved for Commercial pesticide recertification hours:
1 Core hour 3A - 7 hrs 3B - 7 hrs

International Society of Arboriculture CEUs and GCSAA education points will also be available by attending the conference.

Download a copy of the program, get exhibitor information, or register online
<http://www.kansasturfgrassfoundation.com/annual-ktf-conference.html>

FLOWERS

Winterizing Roses



Though most shrub roses are hardy in Kansas, other types of roses can be more tender. For example, the hybrid teas have certain species in their ancestry that originated in the warm climate of southern China. These roses need protection to reliably survive Kansas winters. Mound soil or compost about 8 to 10 inches high around each plant. If using soil, bring it in from another part of the garden. Do not pull it from between plants because this can damage the rose roots or make them more susceptible to cold.

Mounding is normally finished by Thanksgiving. After the ground has frozen, add a 4-inch mulch of straw, leaves or hay for further protection. More soil may be spread on top of the mulch to keep it in place. Do not add the mulch before the ground freezes or mice may invade and feed on the roses over the winter. The purpose of these coverings is not only to moderate the cold, but also to prevent warm days during the winter or early spring from stimulating growth that is tender to returning cold weather. Excessively tall canes should be pruned to a height of 36 inches and tied together to prevent them from being whipped by strong winter winds. Wind can damage the crown of the plant or loosen the surrounding soil.

Next spring, remove coverings before new growth starts. If soil was used for mounding, remove from the area so that the level of soil stays constant from year to year. Wait until after the ground thaws, or the tops may begin growing before the roots can provide water. (Ward Upham)

Amaryllis Culture



Now is the time to start amaryllis if you wish to have them in bloom for Christmas. The amaryllis is a tender bulb that is ready to bloom when purchased. The genus name for this plant is *Hippeastrum*, which means "horse star," an appropriate name for a plant that produces massive blooms as much as 8 to 10 inches across. These plants can produce 3 to 4 blooms on a 1- to 2-foot stem. Often, a second flower stalk follows the first at about the time the flowers on the first stem fade. The leaves usually start to appear when the flowers begin to open.

Amaryllis bulbs can be huge – approaching the size of a grapefruit. The larger the bulb, the larger the flowers and the more expensive the bulb. Regardless of size, amaryllis likes tight quarters. Place in a pot only 1 to 2 inches larger in diameter than the bulb. About half of the bulb should remain exposed. Hold the bulb so the roots hang down into the pot, and add potting mix. Firm the mix around the roots carefully so that they are not snapped off. Water thoroughly and place the plant in a warm, sunny location. Amaryllis likes day temperatures in the 70s and night temperatures in the 60s. The flower bud may start to appear right away or the plant may remain dormant for a period of time, but eventually all mature bulbs do bloom. Move the plant to a cooler location and out of direct sunlight when the flower buds begin to show color so the flowers last longer. Amaryllis can remain in bloom for about a month.

Flowers should be cut off after blooming to keep the plant from expending energy to form seeds. Place the plant back in a sunny location until it is warm enough to be placed outside. Sink the pot in the soil in an area that has dappled shade. The plant can be gradually moved to sunnier locations until it receives full sun for a half day. Continue to fertilize with a balanced houseplant fertilizer as you would a normal houseplant. Bring the pot in before first frost and place in a dark location. Withhold all water so the leaves have a chance to dry completely. Leaves can then be cut off close to the top of the bulb. Amaryllis can often be left in the same pot for several years but will eventually need repotting. Again, choose a pot that is only 1 to 2 inches larger in diameter than the bulb and repeat the process described above. Offsets are normally produced by amaryllis and can be given their own pots if desired. These small bulbs have a concave side when removed but develop a round shape when given their own space. They grow quickly and can be mature enough to flower in a couple of years. (Ward Upham)

ORNAMENTALS

Water Landscape Plants Before Winter



Though this summer was exceptionally wet, recently we have had dry weather for much of Kansas. Watering now is important if soils are dry to help alleviate moisture stress.

A good, deep watering with moisture reaching at least a foot down into the soil is much better than several light sprinklings that just wet the top portions of the soil. A deep watering will help ensure that the majority of roots have access to water. Regardless of the watering method used, soil should be wet at least 12 inches deep. Use a metal rod, wooden dowel, electric fence post or something similar to check depth. Dry soil is much harder to push through than wet.

Although all perennial plants benefit from moist soils before winter, it is especially important for newly planted trees and shrubs due to limited root systems. Even trees and shrubs planted within the last 2 to 3 years are more sensitive to drought than a well-established plant. Evergreens are also more at risk because moisture is lost from the foliage.

Trees or shrubs planted within the last year can be watered inexpensively with a 5-gallon bucket. Drill a small hole (1/8") in the side of the bucket near the bottom. Fill the bucket and let the water dribble out slowly next to the tree. Refill the bucket once more, and you have applied 10 gallons. Very large transplanted trees and trees that were transplanted two to three years ago will require more water.

A perforated soaker hose is a good way to water a newly established bed or foundation plantings. However, soaker hoses are notorious for non-uniform watering. In other words, you often receive too much water from one part of the hose and not enough from another. Hooking both the beginning and the end of the soaker hose to a Y-adapter helps equalize the pressure and therefore provide a more uniform watering. The specific parts you need are shown in the photo above and include the soaker hose, Y-adapter and female to female connector. It is also helpful if the Y-adapter has shut off valves so the volume of flow can be controlled. Too high a flow rate can allow water to run off rather than soak in.

On larger trees, the soaker hose can circle the trunk at a distance within the dripline of the tree but at least 1/2 the distance to the dripline. The dripline of the tree is outermost reach of the branches. On smaller trees, you may circle the tree several times so that only soil which has tree roots will be watered.

If using a soaker hose, note the time watering was started. Check frequently to determine the amount of time it takes for water to reach 12 inches. From then on, you can water "by the clock." Use a kitchen oven timer so you remember to move the hose or shut off the faucet. If you are seeing surface runoff, reduce the flow, or build a berm with at least a 4-foot diameter around the base of the tree to allow the water to percolate down through the soil, instead of spreading out.
(Ward Upham)

Natural Needle Drop on Spruce, Arborvitae and Pines



We are seeing very noticeable natural needle drop on some evergreens such as arborvitae, pines and especially spruce. This is a process where 2- to 4-year-old interior needles turn yellow, then brown, and eventually drop off. Those who aren't familiar with this process often are concerned about the health of the tree. This is a natural phenomenon that occurs every year and does not hurt the tree. However, some years it is much more noticeable than others especially if trees have been under stress. In most

summers, the stress is due to heat and drought but this year was likely due to too much rain restricting oxygen to the roots.

Be sure to check that only the older needles are affected --the needles on the tips of the branches should look fine--and that there is no spotting or banding on the needles that are turning yellow. If spotting or banding is noted, take a sample to your local county extension office for diagnosis. You can find the location of your local office at

<http://www.ksre.k-state.edu/about/stateandareamaps.html> (Ward Upham)

MISCELLANEOUS

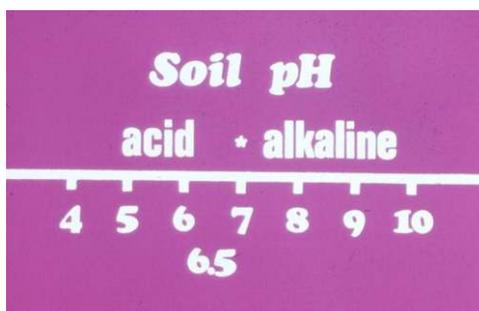
Garden Soil Preparation — It's Not Too Late



Autumn is an excellent time to add organic materials and till garden soils. Winter can still be a good time to take care of this chore as long as the soil isn't frozen. It is far wiser to till now than to wait until spring when cold, wet conditions can limit your ability to work soils easily. Working soil when it is wet destroys soil structure and results in hard clods that are very slow to break down. On the other hand, dry soil may need to be watered so it can be more easily tilled. Be sure to wait several days after watering to let soil moisture levels moderate. You want the

soil moist, not wet or dry, when tilling.

There is a limit to how much organic material such as leaves can be added in one application. Normally, a layer 2 inches deep is adequate with 5 to 6 inches being the maximum that can be added at one time. Shredding the material before application encourages faster and more complete decomposition due to increased surface area. Remember, soil preparation is an important key to a successful garden. (Ward Upham)



High pH Soils and What to Do With Them

Though there are high pH soils in most parts of the state, alkaline soils tend to be more common in the central and western regions of Kansas. These high pH soils can cause problems for plants by reducing the availability of certain micronutrients. For example, most Kansas soils have more

than adequate amounts of iron. However, a high pH can make iron unavailable resulting in a condition known as iron chlorosis as evidenced by light green leaves with darker green veins. Iron chlorosis reduces the health of plants by reducing photosynthesis. Lowering the pH of such soils will eliminate iron chlorosis.

Now would be a good time to have a soil test done to see if your pH is too high. If so, sulfur can be added either now or in the spring to lower the pH. Different textures of soil require different amounts. A sandy soil needs 1.0 to 1.5 pounds of sulfur per 100 square feet to reduce pH one point. A loam soil needs 1.5 - 2.0 pounds and clay needs 2.0 - 2.5 pounds to do the same. For example, if you wished to lower pH from 7.5 to 6.5 on a loam soil, you would need 1.5 - 2.0 pounds of sulfur per 100 square feet.

So, what pH do we shoot for? For most plants, a pH between 6.0 and 7.0 is preferred. Unfortunately, adding sulfur to lower pH is not as clear-cut a solution as we would like. Here are some other factors to keep in mind.

Free calcium carbonate: Some soils have free calcium carbonate, actual particles of limestone mixed in the soil. These "calcareous" soils normally have a pH of 7.3 to 8.5, with 8.2 to 8.3 being most common. In order for us to lower the pH with sulfur, all free calcium carbonate must be neutralized first. A recent soil test showed 6.7 percent free calcium carbonate. One pound of sulfur is needed to neutralize three pounds of calcium carbonate. Assuming 80 pounds for a cubic foot of soil, you would need about 1.75 pounds of sulfur per square foot just to neutralize the free lime. Additional sulfur would be needed to lower pH. Adding this much sulfur to a soil at one time is not recommended.

Not all high pH soils are calcareous. Perform this simple test to see if your soil contains appreciable amounts of free lime. Apply one drop of vinegar to dry soil. A vigorous fizz usually means the soil contains at least 3 percent calcium carbonate. A mild fizz suggests a calcium carbonate of between 1 and 2 percent and a fizz that can only be heard suggests the soil has a calcium carbonate content less than 1 percent.

How sulfur works: Elemental sulfur does not lower pH directly. It must first be oxidized to the sulfate form with the result being sulfuric acid. The sulfuric acid produces hydrogen, which acidifies the soil and lowers pH. The oxidation takes place primarily through microbial activity.

Oxidation takes time: Microbial oxidation of elemental sulfur takes time and depends on:

- number of sulfur oxidizing bacteria present
- temperature (75-104 degrees optimum)
- moisture content of soil (too wet or too dry will slow down process)
- size of sulfur particles (the smaller the better)

A single sulfur application normally takes at least 2 years for most the sulfur to react and form sulfuric acid. This, of course, depends on the above factors. So, what do you do about calcareous soils? See the companion article in this week's newsletter for specific recommendations. (Ward Upham)

Iron Chlorosis and Calcareous Soils



Iron chlorosis due to high pH soils is a significant problem in Kansas. Though Kansas soils normally contain adequate amounts of iron, a high pH makes that iron unavailable to the plant. Iron plays a major role in the production of chlorophyll. Thus, a lack of iron reduces the amount of chlorophyll and results in yellowing of leaves. Iron chlorosis weakens, and in severe cases, may kill a susceptible plant.

A popular recommendation for high pH soils is adding sulfur to lower pH. This works well for many soils, but not those that are calcareous. Calcareous soils are those that contain actual particles of calcium carbonate (limestone). Calcareous soils can be difficult to practically impossible to acidify because the sulfur must neutralize all the free limestone before the pH is affected long term. In many cases you would need well over a pound of sulfur per square foot just to neutralize the free lime.

So, what do you do? That depends on the situation. With vegetable gardens and annual flowerbeds, work products into the soil during the time of year when there are no plants present. Oregon State University suggests mixing 5 pounds of sulfur per 100 square feet into the soil before planting. The idea is to form little pockets of acidity that result in enough iron availability for the plants during the year of application. Note that this must be done each year. Another possibility is to use iron chelates. Iron chelates hold the iron in such a way that the plant can get to it. However, not all iron chelates will work in high pH soils. For soils with a pH over 7.2, use a chelate that contains FeEDDHA (Ethylene diamine-N,N bis(2hydroxyphenylacetic acid)). This can be found in the products Sequestar 6% Iron Chelate WDG, Sequestrene 138 and Millers FerriPlus. Chelates can either be mixed into the soil at planting or sprayed on the foliage early in the season. Reapply as needed. (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

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<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.

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