Horticulture 2012 Newsletter
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Video of the Week: Selecting a Tree

FRUIT

Growing Blueberries

Blueberries are not native to Kansas but will grow in the eastern half of the state with good preparation. They are related to azaleas and rhododendrons and require an acid pH, preferably 4.8 to 5.2. Blueberries do not have root hairs, so watering and mulching are important. It is best to start planting preparations a year ahead of time to allow for pH adjustment, weed control, and the addition of organic matter. The first step is a soil test to determine how much the pH needs to be reduced. For a pH up to 5.5, the addition of sphagnum peat moss at the rate of 2 cubic feet per 100 square feet will be adequate. For a pH 5.5 to 6.0, add 1 pound of sulfur per 100 square feet of bed in addition to the peat moss. For a pH 6.0 to 6.5, add 1.5 pounds of sulfur per 100 square feet of bed. For pH levels above 6.5, use 2 pounds of sulfur per 100 square feet of bed and double the amount of sphagnum peat moss suggested earlier. Do not use aluminum sulfate to correct a high pH because excessive levels of aluminum can be toxic to blueberries. For each 0.5 movement up the pH scale from 6.5, add an additional pound of sulfur. Sulfur can be applied as a dust, but pelletized sulfur is much easier to spread. Treat only the row. Row width should be 5 feet. Blueberries are normally spaced about 5 feet within the row. Sulfur takes time to react, so allow as much time as possible between sulfur application and planting. Blueberries will bear more if you plant more than one variety. Recommended varieties vary, but you may want to try Bluecrop because it is adaptable. Patriot also seems to do well. You may want to try some other varieties.

Blueberries should be mulched. Sawdust is the traditional material, but straw and wood chips will work, too. Mulch to a depth of about 3 inches.

Blueberries must be irrigated. Soils should be kept most but never waterlogged. Adding peat moss to the planting row will elevate the planting bed enough that standing water should not be
an issue. An elevated bed will dry out more quickly, so there must be a way to add water. Trickle irrigation works well. Watering twice a week during the summer with enough water to wet the soil 8 inches deep should be sufficient. Watering once a week may be enough during the cooler spring and fall weather. As you might guess, there is more to growing blueberries than can be included in a short article. Dr. Art Gaus from the University of Missouri shared this instruction sheet on how to grow blueberries more than 25 years ago. It is still excellent information on blueberry culture. You can access it by going to: [http://www.hfrr.ksu.edu/doc3091.ashx](http://www.hfrr.ksu.edu/doc3091.ashx) (WU)

**Blueberries in Containers**

Growing blueberries in containers is becoming popular. Chosen varieties are usually half-high plants that are a cross between highbush and lowbush blueberry species. Plants can be as small as 18 inches tall and wide (Top Hat), but typically are larger. Here are several tips for producing container grown blueberries:

**Acid soil pH:** Blueberries need an acid pH between 4.8 and 5.2. Sphagnum peat moss is very acid and often used in large quantities in soil mixes for acid-loving plants. In fact, blueberries can be grown in peat moss alone if nutrients are provided. A 50/50 mix of peat moss and potting soil is recommended. This will provide nutrients and weight so the plant is less likely to blow over in wind.

**Container size:** Though containers as small as 2 gallons can be used for half-high blueberries, a larger container will be more stable in the wind and provide a larger moisture reserve during hot, dry weather.

**Watering:** Blueberries do not have root hairs, so they are not efficient in picking up water. Potting soil should be kept moist.

**Winter care:** Though plants are winter hardy, the roots are not. Move pots into an unheated, attached garage or bury them in the soil or mulch in early November. Water them periodically during the winter.

**Varieties:** Though blueberries will produce some fruit if only a single variety is grown, two varieties will increase the potential fruit crop. Suggested varieties include Top Hat and Northsky. Each should reach about 18 inches high, though Northsky will likely grow wider than Top Hat. Northblue is another choice that should produce more fruit than either Top Hat or Northsky but should reach 2 to 3 feet high. North Country is intermediate in size at 18 to 24 inches high and should produce a moderate amount of fruit.

**Wind protection:** Wind protection will decrease the amount of water these plants need and reduce the chances of leaf scorch.
Exposure: Blueberries do best with a minimum of 6 to 8 hours of sunlight a day. Try a northern or eastern exposure. (WU)

TURFGRASS

Lawn Calendar for Warm-Season Grasses

March
Spot treat broadleaf weeds if necessary. Treat on a day that is 50 degrees F or warmer. Rain or irrigation within 24 hours of application will reduce effectiveness.

April
Apply crabgrass preventer between April 1 and April 15, or apply preventer when the eastern redbud is in full bloom. If using a product with Barricade, apply two weeks earlier. Crabgrass preventers must be watered in before they will start to work.

May – August 15
Fertilize with 1 lb. of nitrogen per 1,000 square feet per application. More applications will give a deeper green color, but will increase mowing and lead to thatch buildup with bermudagrass and zoysiagrass.

Bermudagrass – Use two to four applications.
Zoysiagrass – Use one to two applications. Too much nitrogen leads to thatch buildup.
Buffalograss – Use one to two applications.
One Application: Apply in June.
Two Applications: Apply May and July.
Three Applications: Apply May, June, and early August.
Four Applications: Apply May, June, July, and early August.

June
If grubs have been a problem in the past, apply a product containing Merit or Mach 2. Either product should be applied by mid July. Merit can be applied as early as mid May if there are problems with billbugs or May beetle grubs. Both of these are referred to as grub preventers. Actually, they kill the grubs when they are small but are called grub preventers because they kill the grubs before they cause damage. These insecticides are effective and safe. They must be watered in before they become active. June is a good time to core aerate a warm-season lawn. Core aeration will help alleviate compaction, increase the rate of water infiltration, improve soil air exchange and help control thatch.

Late-July through August
If you see grub damage, apply a grub killer. If Merit or Mach 2 has been applied, this should not be necessary. Grub killers must be watered in immediately.
Late October
Spray for broadleaf weeds if they are a problem. Treat on a day that is at least 50 degrees F. Rain or irrigation within 24 hours reduces effectiveness. Use the rates listed on the label for all products mentioned. (WU)

ORNAMENTALS

Brighten up February with Dogwood

If you’ve ever been to the Southeastern United States — Alabama, Tennessee, Georgia — you may have seen the spring color of flowering and kousa dogwoods (Cornus florida, Cornus kousa). They light up forests, parks, and home landscapes with stunning, airy displays of white and pink bracts. The striking color on a spring-flowering dogwood is actually a modified leaf. The creamy yellow flower is in the center of the swirl of bracts and not particularly showy.

Unfortunately, in Kansas, we struggle to grow flowering and kousa dogwood trees that can be grown in warmer climates. Dogwood trees prefer acidic (low pH) and moist soils, which is the opposite of what is typically found in Kansas. They also prefer a microclimate, protected from harsh conditions and are susceptible to a myriad of diseases (including anthracnose, powdery mildew, and stem cankers) and insect pests (borers, leaf eaters, galls, and nematodes). Growing a flowering dogwood in Kansas can be a challenge, and may be best left to experienced gardeners. If you would like to try one, plant it near a building in partial shade and irrigate regularly. Consider it an experiment and enjoy it as much as possible. A better dogwood option for Kansas is the shrub-form, red-twiggled dogwood, which thrives in opposite conditions mentioned above. Red-twiggled dogwood is prized in winter for its colorful stems. Most varieties have bright red or coral stems, though there are a few with yellow stems. At the garden center you might see red-stemmed dogwood (Cornus alba), bloodtwig dogwood (Cornus sanguinea) and redosier dogwood (Cornus sericea). You might also find cornelian cherry Dogwood (Cornus mas), which also thrives here as a shrub but is valued for its fruit rather than the stems. The trick to keeping beautiful winter color on red-stemmed dogwoods is to prune out old stems. As stems age, they turn a darker gray/brown color. Only the 1- to 2-year-old stems maintain the bright red color. These species can range from 8 to 10 feet in height and spread 5 to 6 feet, unless you purchase a compact (smaller) cultivar.

As a general rule, tree-form dogwoods don’t perform well in Kansas, but shrub-form dogwoods thrive. You’ll have to do a bit of maintenance on this plant to reap the benefits of winter interest, but your efforts will yield a spot of brightness in the winter, not to mention the cut-flower potential for holiday arrangements. Try one of the red-stemmed dogwoods. Chances are you’ll be happy to have this plant in your garden. (CB)

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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. A lack of iron reduces the amount of chlorophyll and results in yellowing leaves. Iron chlorosis weakens, and in severe cases, may kill a susceptible plant. A popular recommendation for high pH soils is adding sulfur to reduce pH. This works well for many soils. But some soils 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. In many cases you would need well over a pound of sulfur per square foot just to neutralize the free lime.

How do you know if you have a calcareous soil? Add a drop or two of household vinegar to a sample of dry soil and see if it fizzes. If it fizzes vigorously, you have 3 percent calcium carbonate or more. A mild fizz suggests between 1 and 3 percent, and a fizz that is heard but not seen suggests something less than 1 percent. You may also send a soil sample to the Soil Testing Lab here at K-State and ask them to test for free calcium carbonate. (This test costs $20 but will give a precise percentage. Take the sample to your local K-State Research and Extension office, and they will forward it into the university. If you do not know where the office is located, go to: [http://www.ksre.ksu.edu/Map.aspx](http://www.ksre.ksu.edu/Map.aspx)

For information on how to take a soil test in a vegetable garden, go to: [http://www.ksre.ksu.edu/library/hort2/mf2320.pdf](http://www.ksre.ksu.edu/library/hort2/mf2320.pdf)

In vegetable gardens and annual flowerbeds, products can be worked into the soil 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 so that enough iron is available for the plants during the year of application. This must be done each year. Another possibility is to use iron chelates. Iron chelates hold the iron so the plant can get to it. But not all iron chelates will work in high pH soils. For soils with a pH above 7.2, use a chelate that contains FeEDDHA (iron ethylenediamine-diohydroxyphenylacetate). 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. (WU)
Correcting Iron Chlorosis in Trees

Iron chlorosis is a common problem in Kansas because of the high pH in some soils. Though these soils normally contain adequate amounts of iron, the high pH ties up iron so that it is unavailable to plants.

Classic symptoms of iron chlorosis are yellow leaves with a network of dark green veins. In severe cases the entire leaf turns yellow and the edges of the leaf scorch and turn brown. Plants may eventually die.

One of the best methods of avoiding iron chlorosis is by planting tolerant trees. Trees that are susceptible to iron chlorosis include pin oak, sweetgum, and dawn redwood. Moderately tolerant trees are ash, cottonwood, linden, elm, hawthorn, most oaks and ginkgo. Even closely related trees can differ markedly in their resistance. For example, pin oak is notorious for sensitivity to iron chlorosis while most other oaks are moderately tolerant. Also, red, silver and Amur maples are susceptible, but Norway maples are much less so. Several methods are used to correct iron chlorosis in trees. Not all methods work in all situations. The following are the most common.

Soil treatment: The idea is to acidify a small quantity of soil so the tree can absorb the iron it needs from these areas. This will only work on non-calcareous soils (see companion article). A mixture of equal parts of iron sulfate and elemental sulfur are mixed together, and the mixture is placed in holes made under the dripline of the tree. Holes should be 1 to 2 inches in diameter and 12 to 18 inches deep. Space them 18 to 24 inches apart. Each hole should be filled with the iron sulfate-elemental sulfur mixture to within 4 inches of the soil surface. This method is labor intensive and results can vary. Iron chelates can also be used as a soil treatment. The only chelate that is effective above a soil pH of 7.2 is Iron EDDHA. It can be found in the products Sequestar 6% Iron Chelate WDG, Sequestrene 138 and Millers FerriPlus. Use these products in the spring before growth starts. Dry chelate can be sprinkled on the soil and watered in or dissolved in water...
and applied as a drench under the dripline of the tree. Normally, soil-applied chelates last only one year.

Foliar treatment: Leaves are sprayed directly with iron chelates or iron sulfate early in the season. Response is quick, but leaf burning is possible. Response can be spotty and temporary. Repeat applications may be needed.

Trunk injection or implantation: In this method, holes are drilled in the lower trunk and ferric ammonium citrate (iron citrate) or ferrous sulfate is introduced through the holes. There are both liquid and dry formulations. Successful applications often last several years. The preferred time of application is during the spring just after the leaves have fully expanded. Use a brad-point drill bit to minimize tree wounding. Research has shown the uptake is enhanced if the holes are drilled in the root flares near the soil surface. (WU)

**Coldframes and Hotbeds**

These mini-greenhouses can be useful for serious gardeners. Though often used for hardening off seedlings, they can also be helpful in extending the growing season in the fall for cool-season vegetables such as lettuce, kale, green onions, and radishes. You may also want to start pansies in the fall, overwinter them in the cold frame, and set out large plants that give immediate color in the spring. Cold frames also can be used to overwinter nursery plants or give the cold treatment needed to force bulbs. In these last two cases, the cold frame is covered with a tarp or something similar late in the fall just before the ground freezes so that the temperature hovers just above freezing. During the summer, you can remove the top and use the structure as a nursery.

**Basic Design of Cold frames and Hotbeds**
The structure of both cold frames and hotbeds is the same. Basically it's a box covered with glass, plastic or clear fiberglass. The box size varies but is often 5 to 6 feet deep and 6 to 12 feet wide. Height also varies but is often about 18 inches in the back and 12 inches in the front. The slope should face south so that rays from the winter sun can be captured more easily. The only difference between a cold frame and a hotbed is that hotbeds contain a heat source. In the early part of last century, that heat source was often 12 to 24 inches of fresh, straw-laced horse manure placed in a pit under the structure. Today, electric heating cables are often used. Hotbeds are more versatile than cold frames and allow young, tender plants to be started earlier in the year. Cold frames and hotbeds used to require almost constant attention. Venting is absolutely necessary on bright, sunshiny days, even if the outside temperature is relatively cool. If the frames are not vented in a timely manner, the plants can easily overheat. Venting is normally done by having the clear covering (glass, fiberglass, or plastic) fastened to a frame that is attached to the box portion of the structure with hinges. This sash is propped open to let excess heat escape when temperatures demand. Though sashes can be propped open by hand, today automatic ventilators are available that use a temperature-sensitive compressed gas to open
sashes. These do not require an external power source and can be set to open at different temperatures. Cold frames and hotbeds can be purchased, or you may want to build your own. Plans for constructing either structure can be found at:
http://extension.missouri.edu/explorepdf/agguides/hort/g06965.pdf (WU)

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