



YARD & GARDEN NEWSLETTER

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## The Killer Tree

Did you know there is a killer tree, perhaps dozens, growing somewhere in your community? Yet, this tree is one of the recommended trees for South Dakota landscapes, public parks and city boulevards. Yes, many South Dakotans' revere this tree, just as we revere nearly any tree that will grow, thrive and survive in our northern Great Plains climate. South Dakotans' love nearly any tree that will grow here, even a killer tree.

I was privileged to attend the National County Agent's horticulture study tour in the northeast several years ago. As my flight flew over the New England area, made a wide circle out over the Atlantic and prepared to land at Boston's Logan International Airport, I noticed something very different from the prairies of South Dakota. There are no prairies in the New England area – only trees! Trees grow everywhere! In fact, trees there grow like Canada thistle grows in South Dakota. They are like weeds! Folks there have to remove trees in order to build houses, streets or expand their communities. They have to clear trees in order to farm the land. It was mind boggling for a South Dakota farm boy.

During the horticulture study tour they bused us from one arboretum and garden to another. We were privileged to tour Longwood Gardens in Pennsylvania; Arnold Arboretum at Harvard University, Boston; the Emerald Necklace through Boston; New York Botanical Gardens; and many more amazing horticultural sites. As the group

was bused from site to site, each county agent, from all parts of the United States, was called upon to take the tour bus microphone and tell about their state. When it came my turn and I was introduced as an Extension Horticulture Educator from South Dakota, one of my colleagues in the back of the bus shouted out, "Do they even have trees in South Dakota?" My reply was, "Yes, we do have trees in South Dakota but unlike this area of the country, we don't have to clear them like weeds just to build a house or farm a field. Nearly all the trees in South Dakota are growing exactly where we want them because South Dakotans planted them there!" It was then quiet, I had their attention and they were ready to listen.

With the exception of natural stands of cottonwoods along rivers, lakes and sloughs, various thickets of wild plum or chokecherries, and a few other native trees and shrubs, many of the trees growing in South Dakota have been planted. And yes, some of those native trees were the killer tree. We have also planted the killer tree amongst us. So what is this killer tree? Why call it a killer tree?

The killer tree's roots produce a large quantity of toxin called juglone. Juglone causes a toxic reaction with a large number of other plant species. Any of the juglone susceptible plants planted or trying to grow in the vicinity of a killer tree are *terminated*. No, the killer tree does not kill people or pets but it does have the ability to eliminate or severely inhibit the growth of plants such as alfalfa, apple, asparagus, cabbage, cotoneaster, silver maple, peony, pepper, Scotch pine, potato, tomato and many

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more. The toxic zone from a mature killer tree occurs, on average, in a 50 to 60 foot radius from the trunk, but can be up to 80 feet. The area affected extends outward each year as a young tree grows and enlarges. Young trees two to eight feet high can have a root diameter twice the height of the tree, with susceptible plants dead within the root zone and dying at the margins.



Have you guessed the killer tree yet? If you said the black walnut, you are right.

Black walnut, *Juglans nigra* L., is a member of the Juglandaceae family. The Lakota name for this native tree is Cansapa.

Dr. John Ball, SDSU Extension Forestry Specialist, in his book "Trees for South Dakota", Extension Circular 903/October 1995, describes the black walnut tree.

"Black walnut is a valuable timber and nut-bearing tree. However, South Dakota growing conditions limit the commercial production of these two resources. The tree's primary value is as a medium-size shade tree that produces food for wildlife. Black walnut typically has an oval crown and a straight trunk. The bark is brown to



grayish-black and has deep, narrow furrows.

Fall leaf color is usually a brown to poor yellow. The best known feature of the black walnut, the nut, is enclosed in a light green, fibrous husk. Nut production usually begins

after the tree is 12 years old. The average life span of the tree is about 150 years. While it will tolerate dry soils, black walnut grows best in deep, moist soils. The tree has few pest problems except fall webworms and aphids. Black walnut roots and foliage produce a substance that is harmful to many vegetable crops and young conifers."

Dr. Ball's South Dakota tree growing zone map shows black walnut *native* to the southeastern corner of South Dakota and a small area in Codington county; *favorable* to a large portion of the state east of the Missouri River; *marginal* for a north-south strip of central South Dakota; *unfavorable* for the remaining portion of western South Dakota and into much of the Black Hills, with the exception of a *marginal-to-favorable* band extending along the east face of the Black Hills from Belle Fourche, through Sturgis, Rapid City, Custer State Park and down to Hot Springs.

There are folks in South Dakota that are planting black walnut for purposes other than a landscape tree. Some are planting groves of black walnut as a timber investment for the future. The initial black walnut planter likely will not reap the profits of a walnut grove but it may prove quite valuable to the child or grandchild who inherits the property. Black walnut is prized for its dark purplish-brown wood, with a fine grain and luster. It is used for cabinets, furniture, musical instruments, paneling, gunstocks and other fancy wood products.

Others are planting walnut for its valuable nutmeat. Malinda Geisler, Ag Marketing Resource Center Specialist, Iowa State University, in a March 2007 report, cited that black walnuts sold online appeared to be at a premium (value) compared to English walnuts (value). Prices listed on Nuts Online ([www.nutsonline.com](http://www.nutsonline.com)), February of 2007 indicated black walnuts were as much as \$8 per pound more valuable than English walnuts. Black walnuts were selling for \$13.99 per pound compared to English walnuts at \$5.59 per pound. A check of today's (11-12-09) prices show black walnuts at \$13.99 and English walnuts at \$7.49, a \$6.50 difference.

Why are black walnuts more valuable than English walnuts? The rich, nutty flavor of black walnut lends a gourmet touch to ice cream, cookies, breads, cakes and other baked goods. Discovering an available crop of black walnuts in your area is a real find. Growing your own reliable source of black walnuts is a rewarding accomplishment.

Should you want to plant a black walnut in your landscape, there are several important steps you will need to follow. If you have elected to plant a bare-root walnut, choose early spring while the tree is still dormant. Bare-root trees can also be planted in the fall, after the leaves have dropped and the tree has become dormant. Carefully select the site for the tree. Look up and from side to side to determine if there is sufficient space for the full-grown tree. A full grown black walnut can reach 40 feet high and develop a canopy 40 feet wide. Be sure to call 811 to determine if there are buried utilities in the area. Keep the roots moist and covered until planting. A soil and water slurry is an excellent method of preparing the bare-root tree for planting. Prepare the planting hole by digging no deeper than the distance from the root flare at the base of the trunk to the lowest root.



Have an assistant hold the tree over the hole so the upper root flare is at, or slightly above the soil line. Planting too deep is the number one killer of newly planted trees in South

Dakota. Backfill the planting with the soil excavated from the hole. Add the soil in thirds, watering after each third. Watering is the most important form of after-planting care. Newly planted trees commonly fail due to under-watering or over-watering. To determine proper watering, check the soil around the planting once a week during the growing season. The top 2 to 3 inches of soil should be moist enough to form a ball when gripped in your hand. If the soil is dry, add more water to saturate the soil to a depth of 6 to 8 inches deep. Do not water again until the soil dries out.

Another method of planting a back walnut is called container planting. Containerized tree roots have not been disturbed so can be planted anytime from spring to fall. Carefully select the planting site and prepare the site similar to bare-root planting. Containerized trees must be gently removed from the container to avoid damaging the roots. If the roots are pot bound or circling the container, separate and straighten some of the larger girdling roots. Also, slit the bottom quarter of the root mass with a vertical cut and turn the sides up. This is called butterflying. It will improve root establishment and prevent the roots from circling and girdling one another. The planting procedure and post planting management is then the same as for bare-root planting.

Since the black walnut tree establishes a significant tap root, bare-root planting would be preferred over container planting. The tap root of container grown black walnuts may have become impeded in the confines of the container.

If your objective is timber, select a suitable site for multiple trees and space the trees relatively closely, allowing 50 to 100 square feet around each tree at the time of establishment. This encourages trees to grow straight and self-prune as lower branches become shaded and die. It also allows you to be more selective about which trees to let grow and which to remove during thinnings. Trees grow more slowly in dense stands, but they have denser wood and more dark-colored heartwood, thus increasing wood value.

If your objective is nut production, remember walnut trees begin producing nuts when they are about 10 years old, but the best nut production begins when trees are 30 years old. Good nut crops occur in about two out of five years. Open-grown trees with large crowns produce more nuts than woods-grown trees with small crowns, but the number of nuts, frequency of nut crops, and quality of nuts (percentage of kernel to shell, by weight) vary greatly from tree to tree. Allow 200 to 300 square feet of growing space around each tree at



the time of establishment. Gradually thin to about half this density as the trees mature. Keep other trees and shrubs from invading. Sod reduces nut production, but also reduces soil erosion and may discourage other plants from invading that would make nut collection difficult.

Harvesting and curing black walnuts can be quite an experience. I can still remember helping my German grandmother pick the nuts before the squirrels harvested them. We would then spread them out on an old, homemade dirt/gravel sifting screen in her garage to dry.



Grandma would keep checking the walnuts over a four to six week period as the husks changed from solid green to a yellowish-green. When the husks left an indentation when pressed, they were ready to be husked. This was a

difficult and messy task but the reward for me as a little boy was the privilege of cracking the nuts open with a big hammer!

Being German, my grandmother saved and used nearly everything. I have heard it said that the only thing not saved and used when a good German butchered a hog was the squeal! But when it came to walnut husks, grandma had learned from experience not to put them on her garden. Perhaps she had learned the hard way about the toxic effect of juglone on garden vegetables.

Walnut husks contain a black, indelible dye that will stain hands, clothes, tools and work surfaces so the husking process was accomplished wearing gloves (our hands still turned a yellow-black), old clothes and sitting outdoors at her backyard concrete patio area. After hulling the nuts, we would spread the unshelled nuts out on the patio to be rinsed with the garden hose. After rinsing, we would put the nuts, a couple handfuls at a time, in a pail of water. Nuts that had been damaged by insects would float and be discarded. The nuts without injury would sink to the bottom of the pail. The good nuts then went back to the sifting screen in the garage to cure for about 2 weeks. Any well-ventilated area, out of direct sun would work for this curing process. Grandma would check them every now and again by breaking one open. Properly cured nuts, ready for storage, will break crisply with a sharp snap.

After curing, Grandma would store the unshelled nuts in her basement in gunny sacks. A well-ventilated area at 60 degrees F with the humidity at about 70% is best for storage. The nut shells will crack and the kernels will spoil if nuts are stored in too dry an area.



When it was time for little Jerry to shell some nuts, Grandma would soak the nuts in hot tap water for a day, then drain and replace the hot water for

about two more hours. The nuts were then spread out on the table under a moist cloth. Then little Jerry was presented with slab of marble table top, a dish cloth and a hammer. Instructions were to place a nut on the marble, put the dish cloth over the nut and strike, *lightly*, with the hammer. There was also the nutmeat pick to remove the meat from the shell but that was never as much fun as the hammer and breaking them open!

After shelling, nutmeats can be stored in several ways: at room temperature, refrigerated, or frozen. Room temperature stored nutmeats will need to be baked at 215 degrees for 10 to 15 minutes before using and will need to be used within a few weeks. Nutmeats can also be refrigerated for up to nine months without baking. Frozen nutmeats can be stored longer but will need to be used within two years. The harvesting, hulling, curing, cracking and storage of walnuts can be very time consuming but many people find it well worth the time and effort.

For more information about the “killer tree” that has so many redeeming attributes, here are some websites you may want to check out:

Growing Black Walnut

<http://www.extension.umn.edu/distribution/naturalresources/DD0505.html>

Black Walnut Toxicity to Plants, Humans and Horses

<http://ohioline.osu.edu/hyg-fact/1000/1148.html>

Black Walnut Toxicity

<http://www.hort.purdue.edu/ext/HO-193.pdf>

Harvesting Black Walnuts

<http://www.extension.umn.edu/projects/yardandgarden/ygbriefs/h404blkwal.html>

Planting a Bare-root Tree

<http://agbiopubs.sdstate.edu/articles/ExEx6018.pdf>

Planting a Container Tree

<http://agbiopubs.sdstate.edu/articles/ExEx6019.pdf>

## Winterizing Your Tools

The first step to prepare your garden tools for storage is to remove all of the caked on dirt or vegetation. A wire brush, scraper and strong jet of water will help accomplish this step. Allow the tools to dry. This is a good time to sharpen any tools that are dull, such as shovels and hoes. Then spray or wipe all metal parts and cutting edges with a penetrating oil. This will prevent rust. Wipe the wooden handles with boiled linseed oil to prevent the wood from cracking and drying. Warming the oil before applying will allow a deeper penetration into the wood. Then hang the tools in the garage, tool shed or wherever you store your garden tools for the winter.

There are a few other winterizing tasks folks should know about as well. Hand sprayers used for insect, weed and disease control should be thoroughly washed and rinsed. A triple rinse of all sprayer parts, from the tank to the nozzle, is recommended. Follow the manufacturer's recommendations for lubricating any moving parts. Hang the sprayer upside down so it can drain and dry thoroughly. Hang the sprayer hose in such a way that it does not kink or bend. Hose-end sprayers should be rinsed and drained for storage as well.

Water hoses don't need a lot of care but it's important to drain and store them for the winter. Avoid kinking the hose during storage. That kink will become a weak point in the hose and may lead to premature cracking. Barrels, hose supports or reels are best for storing hose.

## Old Farmers Insight & Advice

- Your fences need to be horse-high, pig-tight and bull-strong.
- Forgive your enemies. It messes up their heads.