Plant Wise

IOWA STATE UNIVERSITY
Extension and Outreach

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Thousand Cankers Disease Threatens Iowa Walnut Trees

By Mark Gleason
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Eastern black walnut (*Juglans nigra*) is one of the most beloved native trees in Iowa. Its nuts are eaten by both people and wildlife, and its wood is a favorite for making high-quality furniture and housewares. On top of its everyday uses, black walnut is a stately, long-loved shade tree that graces thousands of Iowa yards and a key part of our forest ecosystems.

Although black walnut has earned a reputation as a trouble-free species, a disturbing cloud has appeared on the western horizon. A newly recognized malady called thousand cankers disease has devastated black walnut trees in many towns in the western United States, from New Mexico to Idaho. What happened?

The story begins with an insect and a different walnut species living together in the desert Southwest. Although the insect – the walnut twig beetle, *Pityophthorus juglandis* – bored holes in the Arizona walnut (*Juglans major*), the damage it caused was usually minor, because the beetle and the tree had evolved together over many millennia.

Then the plot thickened. In the 19th and 20th centuries, settlers of the Southwest often brought along their favorite trees, including eastern black walnut, that were not natives. Black walnut, a native of the eastern United States, seemingly adapted well to its new environment, and soon was widely planted in towns throughout the Southwest and Far West.

At some point during the past few decades, the unexpected happened. As far as the experts can tell, the walnut twig beetle made a host shift – to black walnut. Beetle and tree had never met before, but it was a disastrous encounter for the tree.

It turned out that the walnut twig beetle carries around a fungus called *Geosmithia* that does a number on black walnut. The fungus follows the beetle as it bores through the bark, then invades the tree through the tunnels bored by the beetle. The result is numerous small cankers (areas of dead bark and wood) on twigs, branches, and trunks. The outer surface of the bark over the canker may develop a dark amber-colored stain. Under the bark, the damage is much more obvious: dark brown, discolored sapwood, up to six inches across, centered on beetle tunnels.

By the time cankers are visible, branches and even entire trees may be dying back. The number of cankers on a single tree can be huge; this is how thousand canker disease got its name. The course of thousand canker disease can take years, but the result is always the same: dead black walnuts. Tens of thousands of black walnut shade trees have died throughout the West – as close to Iowa as Denver, Colo.

No useful control measures have been developed yet, and none appear to be likely. The only strategy is to cut down the diseased trees and chip up the bark and outer sapwood, in order to slow the buildup of walnut twig beetle populations.

The fight against this disease appears to be over in the West, and the black walnut lost. But what about Iowa, not to mention the rest of the black walnut's native range in the eastern states? Unfortunately, we are likely to face a high risk of thousand canker disease. Although the disease has not yet been found in Iowa, in July of 2010 it was reported in Tennessee – the first find in the native range of black walnut. It has now also been found in Virginia and Pennsylvania.

The walnut twig beetle does not fly very far by itself, so left to its own devices it might not venture from Colorado across the wheat fields and pastures of the Great Plains to Iowa. That's where people enter the story again.

What happens to all those dead walnut trees in the West? Many are promptly chipped up. But others may fall into the hands of Uncle Mort and Aunt Elsie from Denver. Mort and Elsie just happen to be driving to Iowa to camp in our beautiful state parks, with a load of Colorado black walnut firewood in their trailer. They arrive at the campground after the 700-mile trip. The trailer is popped open, and thousands of walnut twig beetles from Colorado fly out into the Iowa forest, carrying payloads of Geosmithia fungus. You don't need to have special superpowers to predict the outcome of this story.

To add more risk, some individuals in the West are selling black walnut lumber slabs on the Internet, to anyone who will buy it. Unfortunately, these slabs are likely to be riddled with walnut twig beetles unless the bark and outer sapwood are removed. If a woodworker in Ankeny ends up with a garage fully of beetle-infested Colorado black walnut lumber, it's the Mort and Elsie scenario all over again. Ironically, no U.S. or state agency has yet stepped in to try to block interstate movement of black walnut or lumber from the West.

The take-home message from this sad and disturbing tale is that Iowans need to do everything we can to keep western black walnut out of the state. Please do not buy any black walnut lumber from the West, and tell Mort and Elsie to leave their Colorado firewood in Colorado.

If you suspect that a tree has thousand canker disease, please remove a cankered limb and send a segment to the ISU Plant and Insect Diagnostic Clinic, 351 Bessey Hall, ISU, Ames, IA 50011. A sample should consist of 2 to 4 branch pieces with symptoms. Select samples about 2 feet long from branches of the tree with a diameter of 2 to 4 inches. Bag the samples and send in a box along with the Plant Disease Identification Form. Be sure to include information on where it was collected.This step would help to alert state officials about the presence of the disease in our state. You can contact your local extension office to assist you with sending in a sample.

If you observe the characteristic symptoms of the disease after peeling the bark (cankers and beetle gallery in center of canker) you can also contact directly the Iowa Department of Natural Resource, Forestry Bureau at 515-281-4915 or ISU Extension Forestry at 515-294-1168.

For more information about the insect vector and cankers see Colorado State University Pest Alert "Walnut Twig Beetle and Thousand Cankers Disease of Black Walnut".

2012 Garden Calendar Highlights Public Gardens

Many of Iowa's beautiful public gardens are in the spotlight next year with the 2012 Garden Calendar, from Iowa State University Extension and Outreach. The full-color, 12-month calendar highlights a different public garden each month with several photos and information about the garden.

"We wanted to spotlight public gardens next year because we have so many wonderful gardens in Iowa," said Cynthia Haynes, ISU Extension horticulture specialist. "Many of these gardens also have special plant collections, which can give homeowners planting ideas for their own landscapes."

Haynes said visiting these gardens also can help gardeners see what a plant will look like and how much space it will need, as well as inspire them with interesting planting combinations, as they plan their own gardens at home.

The public gardens featured include: The Brenton Arboretum, in Dallas Center; Reiman Gardens, in Ames; Des Moines Botanical Center and Better Homes and Gardens Test Garden®, in Des Moines; Pella Historical Village, in Pella; Iowa Arboretum, in Madrid; Bickelhaupt Arboretum, in Clinton; Neal Smith National Wildlife Refuge, in Prairie City; Vander Veer Botanical Park, in Davenport; Cedar Valley Arboretum and Botanic Gardens, in Waterloo; Dubuque Arboretum and Botanical Garden, in Dubuque; and Noelridge Park, in Cedar Rapids.

The calendar also lists additional public gardens in Iowa. Each garden listed includes a photo, location and contact information.

Each month has several gardening activities and chores listed, so homeowners can easily stay on task as they plan, prepare for, plant and take care of their own 2012 garden.

“Some gardeners also use the calendar as a journal to keep notes from their garden,” Haynes said. “We hope the calendar helps inspire people to create beautiful landscapes and gardens of their own that are fulfilling and rewarding throughout the year.”

Additional extension information and resources are listed in the calendar for gardeners interested in finding out more about various garden topics.

“Public Gardens of Iowa – 2012 Garden Calendar” (PM 0815) is available for $6 from the ISU Extension online store at www.extension.iastate.edu/store or from local extension offices. This is the 34th edition of the ISU Extension and Outreach garden calendar.

Protecting Trees and Shrubs from Rabbits

By Richard Jauron
Horticulture Department
Iowa State University

Rabbits are often portrayed as cute, furry creatures in books and movies. In the real world, however, rabbits can be destructive pests in the home landscape. In winter, rabbits often browse on young trees and shrubs. If feeding damage is extensive, trees and shrubs can be completely destroyed.

Trees and Shrubs Susceptible to Damage

Trees and shrubs that are often damaged by rabbits in winter include crabapple, apple, pear, redbud, honey locust, serviceberry, burning bush or winged euonymus, flowering quince, barberry, roses, and raspberries. Small evergreens (especially pines) are also vulnerable. However, nearly all small trees and shrubs are susceptible to damage when food sources are scarce and rabbit populations are high.

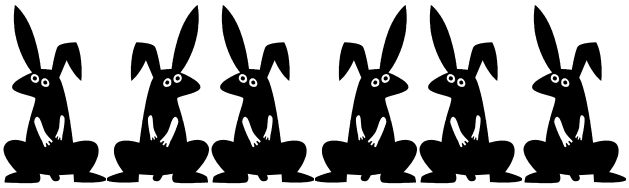
Type of Damage

Rabbits feed on the tissue between the bark and the wood. If rabbits remove the tissue down to the wood and go completely around the tree's trunk, the damaged tree is effectively girdled. Girdling destroys the tree as it disrupts the downward flow of food from the tree's foliage to the root system. Rabbits damage shrubs by chewing off small branches and girdling large stems.

Damage Prevention

The most effective way to prevent rabbit damage to trees and shrubs in the home landscape is to place chicken wire fencing or hardware cloth around vulnerable plants. To adequately protect plants, the fencing material needs to be high enough that rabbits won't be able to climb or reach over the fence after a heavy snow. In most cases, a fence that stands 24 to 36 inches tall should be sufficient. To prevent rabbits from crawling underneath the fencing, bury the bottom 2 or 3 inches below the ground or pin the fencing to the soil with u-shaped anchor pins. Small trees can also be protected by placing white spiral tree guards around their trunks. Since the weather in late fall in Iowa is unpredictable, it's best to have the protective materials in place by early to mid-November. After a heavy snow, check protected plants to make sure rabbits aren't able to reach or climb over the fencing or tree guards. If necessary, remove some of the snow to keep rabbits from reaching the trees or shrubs.

Damage may also be reduced by removing brush, junk piles, and other places where rabbits live and hide. Repellents are another option. Repellents discourage rabbit browsing because of their unpleasant taste or smell. Unfortunately, repellents aren't always effective and may need to be reapplied after a heavy rain or snow. It may also be helpful to reduce the rabbit population in the area by removing some of the rabbits with live traps.



Winter Protection for Chrysanthemums

By Richard Jauron
Horticulture Department
Iowa State University

Chrysanthemums are shallow-rooted plants. Repeated freezing and thawing of the soil during the winter months can heave plants out of the ground and cause severe damage or even death. Gardeners can increase the odds of their mums surviving the winter by applying a mulch in fall. Mulching helps eliminate the alternate freezing-thawing cycles that can heave plants out of the soil. Apply the mulch in late fall, typically late

November/early December in Iowa. Do not cut back the plants prior to mulching. Simply cover the plants with several inches of mulch. Suitable mulching materials include clean straw, pine needles, and evergreen branches. Leaves are not a good mulch as they tend to mat down and don't provide adequate protection. The mulch should remain in place until early to mid-April.

Grass-Carrier Wasps

By Laura Jesse
Entomology Department
Iowa State University

If during fall cleaning you find a handful of dried grass blades tucked between your window screen and window it is a sign that you were lucky enough to host a family of grass-carrier wasps for the summer. The female grass-carrier wasp collects blades of grass and carries these grass clippings to a nest cavity she has selected. The nest looks like a loose pile of brown grass clippings stuffed into a protected opening.

In nature the grass-carrier wasp nests are located in hollow stalks or stems of plants, galleries in wood, abandoned bee galleries and in vertical clay banks or bluffs. However, in the urban environment people who observe grass-carrier wasp nests find them in the sliding tracks of windows or in the space that is left between the screen or storm window and the house window frame. It's startling to be changing the screens or storm windows, or just opening the window and finding the grass clippings, often on the upper story of the house.

After the nest is stuffed with grass the female adds tree crickets (Oecanthus sp.), a specialized food source for her offspring that will soon occupy the nest. The tree crickets are the 1-inch long, slender, light green insects found mixed into the grass-clipping nest. The wasp lays eggs on or near the tree crickets and the larvae feed on the paralyzed prey. After only a few days the wasp larvae are fully-grown and spin papery cocoons. There are one or two generations per year. The wasps spend the winter as a prepupal larva within the cocoon and emerge the following year

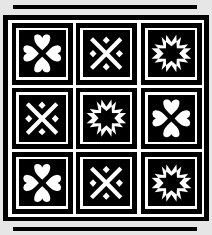
Grass-carrier wasps are solitary. That means each nest is the effort of an individual female. There are no workers to help with nest construction and larval rearing. As a rule solitary wasps do not aggressively defend their nests. They are capable of stinging but will do so only if harassed or handled.

No special controls for grass-carrier wasps are necessary. Discard the nests as they are discovered (usually when cleaning windows or changing screen windows). Chemical treatment is not necessary. Prevent future nesting in the area by installing tighter fitting windows and screens or by plugging gaps and openings leading to interior cavities.

Upcoming Horticulture Events of Interest:

"Quilts in the Garden"

Date: Thursday, Nov. 10 thru Sunday, Nov. 13
Time: Regular garden hours
Place: Lauritzen Gardens
Omaha
Cost: ***$7.00 (Free to members)***



The Lauritzen Gardens Guild 2011 quilt show, *Quilts in the Garden, Fiber Art in Bloom* is a must see fall event. The second annual quilt show is November 10 through 13 and will showcase more than 100 botanically themed art quilts made by quilters from across Nebraska and Iowa. Also a substantially expanded fiber arts exhibits and activities.

For full schedule and more information visit www.lauritzengardens.org

Ask the ISU Extension Gardening Expert

When should I cut back my asparagus?

The asparagus foliage can be cut back to the ground after it has been destroyed by a hard freeze in fall. However, it is generally recommended that the dead foliage be allowed to stand over winter. The dead debris will catch and hold snow. Snow cover helps protect the asparagus crowns from extreme cold. Asparagus foliage allowed to remain in the garden over winter should be removed in late March or early April before the spears begin to emerge.

When should I harvest parsnips?

Parsnips should be harvested in November after exposure to several light freezes. The low temperatures

in fall convert starches to sugars, improving the parsnip's sweet, nut-like flavor. After harvest, trim off the foliage 1/2 inch above the roots and store the parsnips at a temperature of 32 degrees Fahrenheit and relative humidity of 95 to 98 percent.

Gardeners can also leave a portion of the crop in the ground over winter. After several light freezes, cover the parsnips with several inches of straw. Harvest the remaining crop in early spring before growth resumes.

Is fall a good time to fertilize the lawn?

Fall is an important time to fertilize the lawn. Spring and late summer fertilizer applications mainly stimulate leaf growth. A fall fertilizer application promotes root development, enhances storage of food reserves and promotes early green-up next spring. Early November (once the turfgrass foliage has stopped growing) is the ideal time to apply fertilizer in fall. Nitrogen is the most important nutrient to apply in fall. Apply one pound of actual nitrogen per 1,000 square feet.

Are broadleaf herbicides effective when applied during dry weather?

Boadleaf herbicides are most effective when applied to weeds that are actively growing. During prolonged periods of dry weather, some weeds are likely to curl up or wilt. An application of a broadleaf herbicide to drought stressed weeds likely will be less effective as wilted foliage will absorb less herbicide than healthy foliage.

Broadleaf herbicides can be applied from mid-September to early November in Iowa. In dry fall weather, wait for a good rain or irrigate the lawn before applying a broadleaf herbicide. One-half inch or more of water (either from rainfall or irrigation) will quickly revive most drought stressed weeds.

When should I plant an amaryllis bulb to have it in bloom at Christmas?

An amaryllis bulb usually blooms about six weeks after planting. Plant the amaryllis bulb in early to mid-November for spectacular blooms at Christmas. To increase your odds of having an amaryllis in bloom at Christmas, pot up one amaryllis bulb in early November and a second one several days later.

How do I care for my Christmas cactus in fall?

Day-length and temperature control the flowering of the Christmas cactus. The Christmas cactus is a short-day plant. Plants will not bloom properly if exposed to artificial light at night. Flowers may also fail to develop if the plant is exposed to temperatures above 70 degrees Fahrenheit. Night temperatures of 60 to 65 F with slightly warmer daytime temperatures are ideal for flower formation. In early fall, place the Christmas cactus in a cool location that receives bright light during the day, but no artificial light at night. An unused bedroom or basement may have the proper environmental conditions. Keep the Christmas cactus a bit on the dry side in fall. A thorough watering every 7 to 10 days is usually sufficient. Continue to give the Christmas cactus good, consistent care during flower bud development. Moving the plant from one location to another, excessive watering or other changes to its care during flower bud development may cause the buds to drop off. The Christmas cactus can be moved and displayed in another room when the first flowers begin to open.

When can I cut back my rhubarb plants?

Don't cut back the rhubarb until the foliage and stalks have been destroyed by a hard freeze. To produce a good crop next spring, the rhubarb plants must manufacture and store adequate levels of food in their roots. The foliage continues to manufacture food as long as it's healthy. Once destroyed, the foliage and stalks can be removed.

Many of the acorns on the ground beneath my oak tree have small, round holes in them. What made the holes?

Acorn weevil larvae are probably responsible for the small, round holes in the acorns. The adult acorn weevil is a brown colored beetle with a long, thin snout. It is approximately 3/8 inch long.

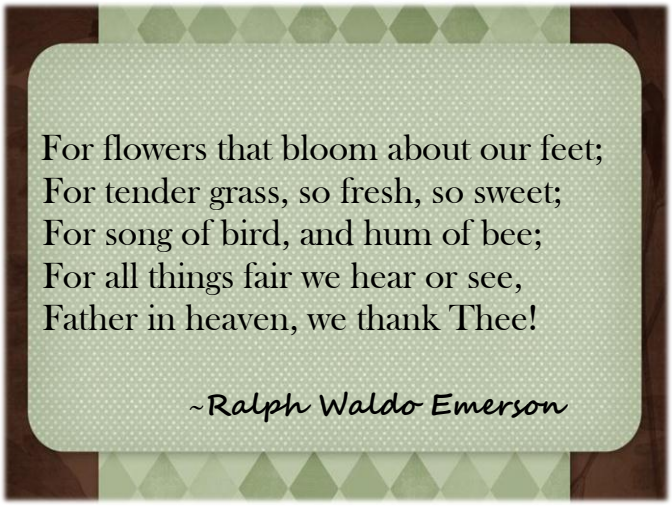
Female adult weevils make small holes in the developing acorns and lay several eggs within the holes. The eggs hatch into creamy white, grub-like larvae that feed inside the acorns until fall. In fall, the acorns drop to the ground and the fully grown larvae chew round, 1/8 inch holes in the sides of the acorns. The larvae emerge from the holes and tunnel into the soil to complete their development. They remain in the soil for 1 to 2 years before emerging as new adult weevils to repeat the process.

The inner growth in my arborvitae is turning brown. Is this a problem?

The browning of the inner foliage is probably due to seasonal needle drop. It's normal for evergreens (pine, spruce, fir, juniper, arborvitae, etc.) to shed their oldest (innermost) needles in fall. The innermost needles gradually turn yellow or brown and drop to the ground. Environmental stresses, such as drought, can cause greater than normal loss of needles. The newest (outermost) needles remain green and healthy.

NOVEMBER GARDENING TO D0 LIST

- Water recently planted evergreens thoroughly before the ground freezes to prevent winter dessication.
- Continue to water newly established trees, shrubs, and perennials.
- Plant spring-flowering bulbs. You can continue to plant most bulbs up until the ground freezes. Ideally though, they will have a couple of weeks to settle in before the ground is frozen.
- Mulch strawberries with 3 – 5 inches of straw.
- Refer to the owner's manual for winter storage care of power equipment.
- Carefully blow or rake tree and shrub leaves off your perennial gardens. Large leaves get wet, mat down, and provide poor insulation for your plants. Shred fallen leaves and use them as a soil mulch or amendment for new plantings. Or rake and bag them for use in next year's garden.
- Plant a windowsill herb garden to enjoy the fresh flavors all winter long.
- Soil preparation can be done until the ground freezes. Spread a 2-3 inch layer of organic matter on the soil of your perennial beds. Work it in to the top few inches.
- Leave stems, flower heads, and seedpods standing for winter interest.
- Leave asparagus growth in place over winter.
- Prevent frost cracking or sunscald by wrapping young, thin-barked trees (such as maples and many fruit trees) with commercial tree wrap.
- Clean, sharpen, and store your garden tools so they will be ready and in good working order next spring.
- Cover perennials susceptible to winter damage, such as chrysanthemums, with pine needles, straw, or pine boughs.
- Pick up a copy of the 2012 Garden Calendar at your Extension office. Pick up an extra copy or two for easy gift-giving!
- Once dormant, protect hybrid tea roses by covering the bottom foot of canes with soil.



Resources for Horticulture information

ISU's Hortline at (515) 294-3108
(Monday-Friday, 10 a.m.-noon, 1-4:30 p.m)

ISU/Mills County Extension: 712-624-8616
www.extension.iastate.edu/mills/yardgarden.htm

Iowa State University Publications

PM 2079	Flowering Plants for the Late Summer Garden
RG 316	Poinsettia Care
RG 308	Growing Holiday Cacti
RG 328	Growing Amaryllis
PM 683	Composting Yard Waste
PM 713	Indoor Plants
RG 402	Lighting and Houseplants
PM 731	Harvesting and Storing Vegetables
RG 312	Suggested Daffodil Cultivars for Iowa
RG 320	Growing and Over-wintering Garden Geraniums
RG 304	Late Season Perennial Flowers

HorticulturePublications on-line
https://www.extension.iastate.edu/store/ListCategories