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## Iris: A Brief History

According to Greek mythology, when the gods wanted to communicate with mortals on earth they sent a messenger. The messenger was a goddess who, with golden wings, traveled to earth on a rainbow. Legend has it that wherever this goddess set foot on earth, colorful flowers sprung up. The goddess in question was Iris, and the flowers that were said to grow where she set foot bear her name.



Iris is a monocot whose flowers are in parts of three. Its three sepals droop downward and are referred to as “falls”, while its three petals are exerted more upright and are known as “standards”. The shape of the iris flower was the inspiration for the “fleur-de-lis” emblem. In the Christian world, the fleur-de-lis came to be particularly associated with the Virgin Mary and purity. It was adapted by the powerful ruler

In spite of the fallacious nature of the above, the fact is in the Greek language the word “iris” means rainbow. And, indeed, the flower bearing iris as a name can be found in nearly every color of the rainbow.

The genus *Iris* is a member of the Iridaceae family and contains nearly 300 species. Most species of iris (also its common name) are perennial plants growing on creeping rhizomes and producing showy flowers. Additionally, there are numerous inter-specific iris hybrids which adds to the complexity iris taxonomy.

The use of iris as a garden plant dates back to 1469 B.C. and King Thutmose III of Egypt. Apparently, the king was an avid gardener and coveted plants the way many at the time coveted gold. When Egypt conquered Syria, the king found irises growing in abundance and introduced them to his gardens. Iris soon became very popular and was regarded by Egyptians to symbolize both the essence and renewal of life. The three petals of the flower were thought to stand for faith, wisdom and valor. Its rhizomes were used for medical purposes and for the manufacture of perfumes and incense used in religious ceremonies.

Frankish King Clovis I in 500 A.D., following his conversion to Christianity. Throughout the ages, this emblem was widely used in heraldry and still can be seen today in architecture and other venues where symbolism is common. For example, the Boy Scouts symbol has the fleur-de-lis as its basis.

Irises made their way to New World as European settlers arrived. Early records indicate irises were planted in Virginia in the 1600s. The first great American iris enthusiast was Michael Foster (1836-1907). Foster was a physician and professor of human physiology who (somehow) found time to garden. He was succeeded by a young protégé of his by the name of William R. Dykes (1877-1925) who greatly advanced the study of iris taxonomy. The culmination of his work resulted in his 1913 publication *The Genus Iris*. In honor of the contribution made by Dykes, the top award that can be given to an iris bears his name: The Dykes Medal.

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The most popular garden iris today is the German or bearded iris (*Iris germanica*). The common name is derived from the thick, bushy “beards” that appear on each of the falls of the flower. This species has been so widely hybridized that many cultivars are no longer morphologically typical of the original German iris. Thus, *Iris* ‘Bearded Hybrids’ often is listed today as its scientific name.

The American Iris Society recognizes six different classes of bearded iris, based mainly on plant size and flower morphology. The tall bearded class probably is the most popular and widely planted of the group. By careful selection of bearded irises, one can enjoy a remarkable range of colors and a bloom season extending for months. Some bearded irises blooming again in the summer or fall and are classified as “rebloomers”.

Most species of iris (included bearded) are relatively easy to grow. They require at least six to eight hours of direct sun and a well-drained garden loam. Tight, heavy soils should be amended with organic matter to improve drainage. Although an iris can be transplanted any time one can get a shovel into the soil (i.e. the ground is not frozen) late August through mid-October is best for our latitude.

Iris is propagated vegetatively through the division of fleshy rhizomes which have at least one growing point (fan) attached. It is important to plant iris at a depth that allows the top of the rhizome to be exposed to the sun. Spacing iris between 12 to 24 inches apart is the norm. Closer planting will a more results in immediate effect, faster clump formation, and more color. However, the clump will need rejuvenation (division) in two to three years.

Water newly-planted rhizomes immediately. Once established, irises can be watered less frequently. Watering frequency will depends greatly on their



environment. It should be noted that over watering of irises is a common mistake. Whenever water is needed, less frequent deep watering is better than frequent, shallow watering.

Irises are fairly heavy feeders; therefore proper fertilization is important. Soil type and native fertility largely will determine fertilizer needs. When fertilizer is added, use a well-balanced fertilizer (e.g. 13-13-13 or 5-10-10). Fertilizers high in nitrogen should be avoided since excessive nitrogen encourages soft, vegetative growth more susceptible to diseases. Generally, a light application of fertilizer in early spring and again a month after bloom is sufficient. When applying fertilizer, take care not to place any directly on the exposed rhizomes.

Irises are susceptible to a number of insect pests, the most troublesome being the iris borer. The latter is a moth whose larvae feed on the fleshy rhizomes. This, in turn, allows for the entry of bacterial soft rot which can quickly kill the rhizome. Inspect plantings frequently and discard infested plants. Additional insect pests include bud moth, iris weevil, thrips, and slugs and snails.

Common diseases of iris include bacterial leaf blight (spot), fungal leaf spot, bacterial soft rot and fungal crown rot. Good sanitation, keeping the garden free of debris and planting

to encourage good air circulation all help in lessening disease occurrence.

When irises decline in the number of blooms produced it a signal the clump needs to be divided. Under normal conditions, this should be done every three to four years. One can either thin the clump by removing several divisions (leaving a portion of the clump in the ground), or remove the entire clump, improve the soil and replant a few large rhizomes.

A discussion of iris would be incomplete without the mention of Siberian iris (*Iris siberica*) and Japanese iris (*Iris ensata*). Siberian iris bears smaller blooms and has relatively narrow foliage. It prefers cooler temperatures and a slightly acid soil. Available in a variety of bloom colors, Siberian iris grows two to four feet in height. Bloom date is several weeks later than bearded iris.

Japanese iris has been hybridized for over 500 years and bears some of the most exquisite, showy flowers in the genus *Iris*. It prefers slightly acidic soil and demands adequate soil moisture. Wet in the spring and moist in the summer is a good rule for Japanese iris. Japanese iris blooms about a month after bearded iris.

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# Thousand Cankers Disease

## Geosmithia morbida Spores Isolated from a Weevil

by Michele Warmund and Jerry VanSambeek

Recently, *Geosmithia morbida*, the canker-causing fungus associated with thousand cankers disease, was isolated from *Stenomimus pallidus* weevils (Figure 1) found on two stressed black walnut trees in Yellowwood State Forest near Nashville, Indiana. This is the first report of *Geosmithia* fungus occurring on an insect other than the walnut twig beetle (*Pityophthorus juglandis*) (Figure 2).

*Geosmithia morbida* vectored by the walnut twig beetle are the causal agents for thousand cankers disease found originally in the western United States. More recently, it has been found in one or more counties of Tennessee, Pennsylvania, Virginia, North Carolina, Ohio, and possibly Maryland and has the potential to have a major impact on the walnut resource in the Eastern United States. Typically, walnut twig beetles, which are smaller than a pinhead, bore into walnut branches and deposit the fungus that produces a dead area or canker about the size of a small coin under the bark (Figure 3). Typically the fungus infects already stressed trees and limits the transport of nutrients in the phloem of the tree. As the cankers coalesce, branches gradually die, the canopy thins, and ultimately these trees die. Thousand cankers disease can kill walnut trees three to ten years after symptoms are visible.

In Indiana, *Geosmithia* spores were discovered on *S. pallidus* weevils captured as part of a survey by the U.S. Forest Service-led effort in cooperation with scientists from the University of Missouri and Purdue University. As a part of the survey, walnut trees or branches were girdled, attracting a wide range of bark and ambrosia beetles that were later captured using emergence buckets. More than 16,000 beetles, weevils, and parasitoids were captured and a subsample was screened for the fungal spores carried in mycangium or attached to the adult insect. *S. pallidus* weevils were also captured in Missouri but may not have been screened for fungal associates. The range of *S. pallidus* is in the eastern United States from Maryland to Missouri and is found on dead oak trees and under bark of wounded hickory and black walnut trees.

Figure 1. *Stenomimus pallidus* weevils.



Photos by J.C. Ciegler

Figure 2. *Pityophthorus juglandis*, a vector of thousand cankers disease found in several locations.



Photo by J. LaBonte

To date, there have been no reports of thousand canker disease in Missouri. An exterior quarantine, prohibiting the movement of untreated walnut wood products, with bark and all hardwood firewood, from states known to have thousand cankers disease is in place to limit the spread of this disease into Missouri. If you suspect thousand cankers disease on declining walnut trees, please take digital photos of the tree, its leaves, and symptomatic branches and contact the Missouri Department of Conservation (573) 815-3947.

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## July Gardening Calendar

Category	Week				Activity
	1	2	3	4	
Ornamentals	x	x	x	x	Provide water in the garden for the birds, especially during dry weather.
	x	x	x	x	Remove infected leaves from roses. Pick up fallen leaves. Continue fungicidal sprays as needed.
	x	x	x	x	While spraying roses with fungicides, mix extra and spray hardy phlox to prevent powdery mildew.
	x	x	x	x	Newly planted trees and shrubs should continue to be watered thoroughly, once a week.
	x	x	x	x	Fertilize container plants every 2 weeks with a water soluble solution.
	x	x	x	x	Keep weeds from making seeds now. This will mean less weeding next year.
	x	x	x	x	Keep deadheading spent annual flowers for continued bloom.
	x	x	x	x	Perennials that have finished blooming should be deadheaded. Cut back the foliage some to encourage tidier appearance.
	x	x			Plant zinnia seed by July 4th for late bloom in annual border.
	x	x			Spray hollies for leaf miner control.
	x	x			Prune climbing roses and rambler roses after bloom.
	x	x			Apply final treatment for borers on hardwood trees.
	x				Apply no fertilizers to trees and shrubs after July 4th. Fertilizing late may cause lush growth that is apt to winter kill.
	x				Hot, dry weather is ideal for spider mite development. With spider mite damage, leaves may be speckled above and yellowed below. Evergreen needles appear dull gray-green to yellow or brown. Damage may be present even before webs are noticed.
		x	x		Fall webworms begin nest building near the ends of branches of infested trees. Prune off webs. Spray with Bt if defoliation becomes severe.
		x			Divide and reset oriental poppies after flowering as the foliage dies.
			x	x	Semi-hardwood cuttings of spring flowering shrubs can be made now.
			x	x	Summer pruning of shade trees can be done now.
			x		Powdery mildew is unsightly on lilacs, but rarely harmful. Shrubs grown in full sun are less prone to this disease.
				x	Divide bearded iris now.
		x			Don't pinch mums after mid-July or you may delay flowering.

*Gardening Calendar supplied by the staff of the William T. Kemper Center for Home Gardening located at the Missouri Botanical Garden in St. Louis, Missouri. ([www.GardeningHelp.org](http://www.GardeningHelp.org))*

# July Gardening Calendar

Category	Week				Activity
	1	2	3	4	
Lawns	x	x	x	x	Water frequently enough to prevent wilting. Early morning irrigation allows turf to dry before nightfall and will reduce the chance of disease.
			x	x	Monitor lawns for newly hatched white grubs. If damage is occurring, apply appropriate controls, following product label directions.
Vegetables	x	x	x	x	Blossom-end rot of tomato and peppers occurs when soil moisture is uneven. Water when soils begin to dry; maintain a 2-3 inch layer of mulch.
	x				To minimize insect damage to squash and cucumber plants, try covering them with lightweight floating row covers. Remove covers once plants flower.
		x			Dig potatoes when the tops die. Plant fall potatoes by the 15th.
			x	x	For the fall garden, sow seeds of collards, kale, sweet corn and summer squash as earlier crops are harvested.
			x	x	Set out broccoli, cabbage, and cauliflower transplants for the fall garden.
			x		Sweet corn is ripe when the silks turn brown.
			x		Keep cukes well watered. Drought conditions will cause bitter fruit.
			x		Harvest onions and garlic when the tops turn brown.
				x	Sow seeds of carrots, beets, turnips, and winter radish for fall harvest.
	x	x	x	x	Cover grape clusters loosely with paper sacks to provide some protection from marauding birds.
	x				Prune out and destroy old fruiting canes of raspberries after harvest is complete.
	x				Blackberries are ripening now.
		x	x		Apply second spray to trunks of peach trees for peach borers.
			x	x	Early peach varieties ripen now.
				x	Thornless blackberries ripen now. Gardening Calendar supplied by the staff of the William T. Kemper Center for Home Gardening located at the Missouri Botanical Garden in St. Louis, Missouri. ( <a href="http://www.GardeningHelp.org">www.GardeningHelp.org</a> )

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