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Gourdes: Nature's Utensils

by David Trinklein

Thousands of years ago, our ancestors did not have the option of going to a hardware store or supercenter to shop for the necessities of life, such as household utensils. Instead, they were forced to improvise, often using items that could be found in nature. The dried fruit of several members of the Cucurbitaceae family proved very useful for a number of purposes. Today, we refer to those plants as gourds and still use them for a variety of purposes.

Gourds have been theorized to be among the first domesticated plant species, dating back as early as 13,000 B.C. They continued to be used by nearly every civilization throughout the course of history. When the first Europeans set foot on what is now the United States, they found Native Americans using gourds for many different purposes. One interesting use was to entice purple martins to nest near their villages by hanging hollowed-out gourds. The practice supposedly was done for insect control and soon was adopted by early settlers. The tradition continues today, although most "gourd" martin houses are made of plastic.

Gourds used by Native Americans as nesting boxes for martins belong to the genus *Lagenaria*. Members of this genus produce white flowers that open at night and have foliage that is soft and delicate. Most bear fruit that have thick, hard shells when dried, making them useful for items such as ladles, dippers, spoons, containers, bird houses, etc. The fibrous interior of the luffa gourd has been used to produce items as diverse as oil filters, life preservers, scrubbing sponges, hats and upholstery.



Gourds belonging to the genus *Lagenaria* require about 120 days to mature and are thought to be native to tropical Africa.

In contrast, most of the colorful gourds used for decoration (sometimes referred to as ovifera gourds) belong to the genus *Cucurbita* and are close relatives of pumpkin. Members of this genus produce yellow flowers that open during the day and have foliage a bit more coarse than the white-flowers types. Examples include the pear, egg, orange, spoon, bicolor and warted gourds. Most gourds belonging to this genus mature in about 90 days and are thought to be native to the Andes and Mesoamerica.

Like most cucurbits, gourds are a warm-season crop. Outdoor planting should be delayed until danger of frost has passed, and soil and air temperatures have warmed. Gourd seeds may rot before germinating if planted in cold, wet soils. For those varieties that take a long time to mature, starting seeds indoors can help to assure success of the crop.

Gourds prefer a sunny, well-drained site. The soil should be enriched with organic matter, such as compost, composted

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manure or peat moss, and prepared thoroughly. It is best to base fertilizer applications on soil test results. However, a general recommendation is to apply two to three pounds of fertilizer with a 1:2:2 ratio (e.g. 5-10-10), per 100 square feet of garden area. The pH of the soil should be maintained at between 6.5 and 6.8.

When planting, space seeds or transplants two feet apart in rows separated by five feet. Alternatively gourds can be planted in hills four feet apart in rows separated by seven feet. If the hill method is used, thin to two plants per hill. Gourds produce vigorous vines that adapt well to a trellis, fence, or other type of support. Trellising helps to prevent fruit from forming areas of discoloration that occur, if allowed to come in contact with the ground.

When the vines begin to "run," additional fertilizer will help to maintain optimum growth. Apply about three pounds of a fertilizer fairly high in nitrogen (e.g. 10-10-10) per 100 square feet of garden area.

At this time of the year (August), gourds should be growing rapidly and should be kept well-watered to encourage vigorous growth. Weed control is important since they compete for water and soil nutrients. Gourds have relatively shallow root systems. Therefore, if cultivation is practiced for weed control, take care not to injure the plants' roots. Mulches applied beneath the vines help to control weeds, conserve soil moisture and prevent ground rots or other problems associated with soil contact of the fruit.

As is the case with other cucurbits, cucumber beetles can become troublesome pests on gourds. They serve as a primary vector for bacterial wilt, which can quickly kill vines. Additionally, when they feed on the surface of developing fruit, they cause discolored, brown areas to form rendering the gourd unattractive. Cucumber beetles are very mobile and can move quickly from one garden to another. Therefore, constant monitoring is required. If found to be present in significant numbers, use an approved insecticide labelled for their control on gourds (e.g. carbaryl). Always read and follow label directions when using pesticides.

Small ornamental (ovifera) gourds may be harvested as soon as the rinds are mature and hardened. It is best to harvest by cutting them from the main vine allowing a small portion of the stem to remain attached. After harvest, they should be allowed to cure for several weeks in a warm, dry area with good air circulation. After curing, dipping them in or coating them with a household disinfectant can help to prevent storage diseases. A light coat of wax also will protect them from diseases in addition to giving them an attractive sheen.

Lagenaria gourds normally are allowed to remain on the vines until the vines die or are frozen in late fall. Freezing will not harm mature gourds but will cause immature ones to collapse. Immature gourds are of or little value anyway since they do not cure well. After harvest, these hard-shelled gourds should be

stored in a warm, dry area to cure. For most types, the curing process requires in the neighborhood of four months. Curing has been accomplished when the seeds inside the gourd rattle upon being shaken. At this time they can be sanded, sawed, painted,

polished or have whatever is necessary done to them to make them into useful or decorative items.

For adventuresome gardeners, saving seeds from gourds can be an interesting experience. Since the cucurbits freely cross-pollinate, seeds saved from gourds grown in the garden will likely produce a plethora of fruit of different shapes, sizes and colors. More likely than not, very few of the offspring will resemble the fruit from which the seed was saved.

"Are gourds edible?" is a common question often asked. The answer depends on the species in question as well as its age. The majority of the *Lagenaria* gourds can be eaten when the fruits are young. However, as these gourds mature, they develop a chemical rendering them sour and bitter to the taste. A good example of an edible

gourd is *Lagenaria siceraria*, more commonly known as calabash or bottle gourd. It can be used as a vegetable much like summer squash when immature. Allowed to fully mature and dry, it can be made into a bottle or utensil.

The small, colorful ovifera gourds used mainly for decoration are not considered to be edible.



Gourd Trivia

- The ancient Chinese tied gourds to the backs of children and boat people to serve as life preservers.
- In the early 1800s, the country of Haiti for a short time used gourds as its official currency. Even today, the standard coin of Haiti is called a gourde.
- The papery, winged seed of the climbing gourd has a wing-span of five inches. Reportedly, it inspired the design of early aircraft and gliders.
- According to the Guinness Book of World Records, the world's longest gourd was grown in China in 2008. It measured an astonishing 14 feet, 11 inches in length.
- Gourds, usually having stories carved on them in the form of pictures, are given as wedding gifts by people of East Africa.
- Ricky Ricardo's bongo drum in the television sitcom "I Love Lucy" was made from a zucca gourd. The latter frequently grow to a weight of 50 pounds or more.

Weed of the Month: Poison Ivy

by Mandy Bish and Kevin Bradley

Poison ivy (*Toxicodendron radicans*) is a native perennial weed that can occur in landscapes, woods, fencerows, pastures and haylands across the U.S. The plant is the major cause of allergic dermatitis in the eastern U.S. Yet it can be difficult to identify given the variability in the shapes of the leaflets and its growth habit; hence the commonly used phrase, “leaves of 3, let it be.”

Younger plants may appear erect and almost shrub-like as they get established (Figure 1). However, as the plant grows the vine becomes woody and can climb on other objects and vegetation (Figure 2) by attaching to the object with aerial roots (Figure 3). The plant may also trail along the ground (Figure 4). The stems of poison ivy are capable of rooting whenever they come into contact with the soil.

While the individual poison ivy leaflets can vary in shape, the general leaf structure is consistent, which will prove helpful in identification. Each poison ivy leaf is comprised of 3 leaflets. The 2 lateral leaflets attach to the stem via short petioles (the appendage that attaches the leaf to the stem). The middle leaflet tends to be attached by a much longer petiole (Figures 2 and 5a), and all 3 leaflets are glabrous, or lack hairs on the surface. Leaflets can be toothed or without teeth, and most commonly has lobed edges. Typically, the 2 lateral leaflets are distinctly lobed on one side of the leaflet but not the other, and each leaflet is from $\frac{3}{4}$ to 4” long and wide. The leaves tend to be a bright, shiny green earlier in the summer but will turn red or reddish yellow as fall approaches.

Typically poison ivy reproduces by the creeping roots and stems; however, the plants can also produce seed. Poison ivy flowers are small and yellowish green to green in color. They occur in clusters of 2 to 6 and usually arise between the petioles and the stem. Birds eat the berries, which turn from green to white as they mature (Figure 5b), and then disperse the seeds. When seeds germinate, the seedlings’ cotyledons are oval and the first true leaves are divided into three leaflets (Figure 5c).

Poison ivy can be mistaken with Virginia creeper (*Parthenocissus quinquefolia*) and poison oak (*Toxicodendron toxicarium*). However, Virginia creeper leaves are divided



Figure 1: A young poison ivy plant may appear erect and almost shrub-like.



Figure 2: Poison ivy can commonly be seen growing on trees



Figure 3: Aerial roots allow poison ivy to climb



Figure 4: Poison ivy can also creep along the ground.

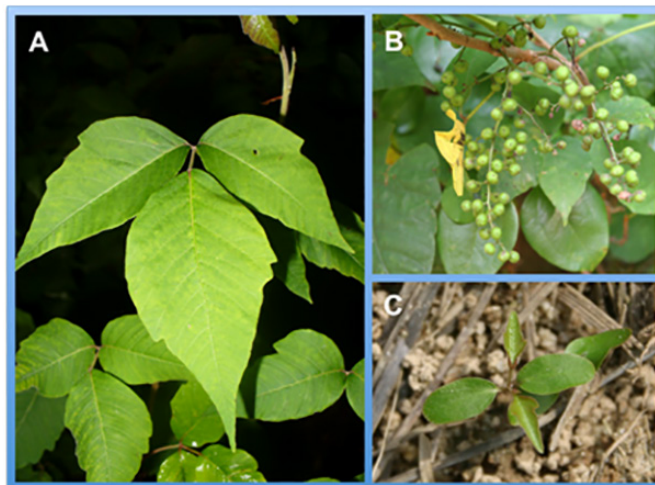


Figure 5: The leaflets (A), berries (B), and newly emerging seedlings (C) of poison ivy.

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September Gardening Calendar

Category	Week				Activity
	1	2	3	4	
Ornamentals	x	x	x	x	Continue planting evergreens now.
	x	x	x		Cuttings of annuals can be taken now to provide vigorous plants for overwintering.
	x	x	x		Herbs such as parsley, rosemary, chives, thyme and marjoram can be dug from the garden and placed in pots now for growing indoors this winter.
		x	x	x	Except tulips, spring bulbs may be planted as soon as they are available. Tulips should be kept in a cool, dark place and planted in late October.
		x	x		Begin readying houseplants for winter indoors. Prune back rampant growth and protruding roots. Check for pests and treat if necessary. Houseplants should be brought indoors at least one month before the heat is normally turned on.
			x	x	Perennials, especially spring bloomers, can be divided now. Enrich the soil with peat moss or compost before replanting.
			x	x	Divide peonies now. Replant in a sunny site and avoid planting deeply.
			x	x	Lift gladioli when their leaves yellow. Cure in an airy place until dry before husking.
			x		Poinsettias can be forced into bloom for Christmas if they are moved indoors now to a sunny windowsill. Each night, they must be kept in a cool, dark place where there is no light for 14 hours. This must continue until proper color is achieved in 6-10 weeks.
Lawns	x	x	x	x	Cool-season lawns are best fertilized in fall. Make up to 3 applications between now and December. Do not exceed rates recommended by fertilizer manufacturer.
	x	x	x	x	If soils become dry, established lawns should be watered thoroughly to a depth of 4-6 inches.
	x	x	x	x	Begin fall seeding or sodding of cool-season grasses. Seedbeds should be raked, dethatched or core-aerified, fertilized and seeded. Keep newly planted lawn areas moist, but not wet.
		x	x	x	Lawns may be topdressed with compost or milorganite now. This is best done after aerifying.
			x	x	It is not uncommon to see puffballs in lawn areas at this time.
			x	x	Newly seeded lawns should not be cut until they are at least 2 or 3 inches tall.

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)

September Gardening Calendar

Category	Week				Activity
	1	2	3	4	
Vegetables	x	x			Egyptian (top-setting) onions can be divided and replanted now.
	x	x			Sowing seeds of radish, lettuce, spinach and other greens in a cold frame will prolong fall harvests.
		x	x	x	Keep broccoli picked regularly to encourage additional production of side shoots.
		x	x		Pinch out the top of Brussels sprout plants to plump out the developing sprouts.
		x	x		Harvest herbs now to freeze or dry for winter use.
		x	x		Tie leaves around cauliflower heads when they are about the size of a golf ball.
			x	x	Pinch off any young tomatoes that are too small to ripen. This will channel energy into ripening the remaining full-size fruits.
				x	Sow spinach now to overwinter under mulch for spring harvest.
Fruits	x				Pick pears before they are fully mature. Store in a cool, dark basement to ripen.
			x	x	Bury or discard any spoiled fallen fruits.
				x	Paw paws ripen in the woods now.
				x	Check all along peach tree trunks to just below soil line for gummy masses caused by borers. Probe holes with thin wire to puncture borers.
Miscellaneous	x	x	x	x	Autumn is a good time to add manure, compost or leaf mold to garden soils for increasing organic matter content.
	x	x			Monitor plants for spider mite activity. Reduce their numbers by hosing off with a forceful spray of water.
		x	x	x	Seasonal loss of inner needles on conifers is normal at this time. It may be especially noticeable on pines.

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)

Weed of the Month: Poison Ivy, continued.

into 5 leaflets as opposed to 3. And Poison Oak leaflets are usually duller green in color and have hair on both sides of the leaflet surface.

The toxin present in both poison oak and poison ivy is a chemical called urushiol, which is yellowish in color and present in the leaves, flowers, stems and roots of the plant. Once the plant becomes bruised or damaged, urushiol is emitted onto the leaf and the stems. Approximately 85% of people are allergic to the compound¹, and according to the Center for Disease Control, urushiol can remain active for 5 years following its emission. Coming into direct contact with the plant is not necessary for getting the rash; the plant sap, which contains urushiol, can be picked up from clothing, pets, tools, etc., anything that has come into contact with the plant.

Unfortunately, control of poison ivy can be quite challenging. Regardless of whether mechanical, cultural, or chemical methods are used, it is important not to burn the plant's debris as the toxin is volatile and can be inhaled. This can lead to an allergic reaction in the lining of the lungs. For chemical treatment, most commercially available herbicides that are specifically marketed for poison ivy control contain glyphosate (brand name Roundup) in combination with either 2,4-D or triclopyr. High-volume applications of glyphosate have been shown to be effective for initial control of poison ivy.

However, glyphosate is a non-selective herbicide and will kill any nearby desirable foliage that it contacts. Additionally in recent years, research has shown that either 2,4-D or triclopyr alone are more cost effective options for controlling young poison ivy plants than glyphosate alone or glyphosate in a mixture with

either of the 22. Both 2,4-D and triclopyr are selective and will not kill grasses. Recent research published by weed scientists at Auburn has shown that applications of 2,4-D at 0.5 lb/A on 2-year old poison ivy plants will result in 95% control up to one month following herbicide treatment. However, when the researchers examined the same plants 4 months following the herbicide treatment, the group concluded that 2,4-D only provided 80% long-term control and a subset of the plants had begun to regrow³. The authors of this study went on to find that 1.0 lb dicamba/A by itself was the most cost effective method for long-term control of established poison ivy. Any combination of dicamba and 2,4-D together or 2,4-D alone was slightly less effective in controlling poison ivy regrowth long-term³.

For more information on poison ivy, visit our weed identification web site: <http://weedid.missouri.edu> or download our free app IDWeeds.

For more information on tough-to-control pasture and non-cropland weeds, order a copy of our latest Integrated Pest Management publication, which has a comprehensive list of weeds, detailed images and control measures for each:

<http://extension.missouri.edu/p/ipm1031>

¹The American Academy of Dermatology: www.aad.org

²Wehtje G and CH Gilliam (2012) Cost-Effectiveness of Glyphosate, 2,4-D and Triclopyr, Alone and in Select Mixtures for Poison Ivy Control. *Weed Technology* 26: 469-473.

³Wehtje G and CH Gilliam (2015) Poison Ivy (*Toxicodendron radicans*) Control with Dicamba and 2,4-D Applied Alone and in Tank Mixtures. *Weed Technology* 29: 115-120.

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