

Hickories can be gathered from woodlands, and varieties that produce high-quality nuts make a nice addition to Kentucky woodland plantings (Figure 1). Native hickories that have relatively high-quality nuts and are the most suitable for nut production include shellbark hickory (*Carya laciniosa*), shagbark hickory (*Carya ovata*), and crosses between these species (Figure 2). While shagbark hickory and shellbark hickory look similar, there are a number of ways to tell them apart (Table 1). Pecan (*Carya illinoensis*) is actually a type of hickory—note that its scientific name is *Carya*, the same as hickories. This indicates that pecan is a type of hickory and can breed with other hickories: pecan shoots can be successfully grafted onto hickory trees, and hickory shoots can be grafted onto pecan trees. However, from a practical standpoint, we typically refer to pecans as being distinctly different from hickories. Other native hickories, including mockernut hickory *C. tomentosa* and some pignut hickories *C. galabra* and *ovalis*, also produce sweet kernels but have unacceptable cracking qualities.

Obtaining Seedlings and Graft Wood

There are no organized breeding programs for hickories as there are for pecans, so hickory varieties have been selected from the wild. To assure high-quality nuts, hickory trees must be grafted with a known variety. Variety recommendations for Kentucky are listed in Table 2. Hickory trees typically have taproots and are difficult to dig for transplant, but there are a few nurseries where bare-root grafted trees can be purchased for spring planting. Alternatively, seeds can be planted where trees are desired or established hickory trees can be grafted with improved varieties.



Photo courtesy: Richard Simpson

Figure 1. Original Simpson No. 1 shellbark hickory tree along Pine Lick Creek in western Lincoln County. First noted by William Tinsley in 1790. Note metal squirrel shield at base.

Non-Timber Forest Products

Have You Considered Shagbark and Shellbark Hickories?

by John Strang

Photo courtesy: John Strang



Grafting Hickories

Dormant scion wood (a section of a branch that contains buds) is collected in late winter and stored in a refrigerator for grafting. Grafting is both a science and an art. You can get general information on grafting woody plants on the Internet from a wide variety of sources. Typically, scion wood is grafted onto a small rootstock, normally from seedlings 1 or 2 years old. The best seedling to use as rootstock is from northern pecan. Native hickory species such as bitternut, pignut, and mockernut do not make good seedlings to use for grafting shellbark and shagbark hickories. Specifically, one, three, or four-flap grafts are made with dormant scion wood onto stock trees in May and June. Weather is a major factor affecting grafting success. A 65°F overcast day is ideal if the rootstock bark is slipping easily. Heavy rainfall just prior to or following grafting is detrimental to obtaining successful grafts.

Pruning and Nut Production

Pruning on hickories is minimal and consists mostly of encouraging the growth of branches that form and grow outward from the stem, which is done by removing branches that emerge from the trunk at narrow angles and pruning to promote only one main leader. If two leaders occur, prune one off. Nut production can take 10 to 15 years for seedling trees, while grafts on older trees may produce in three to four years. To obtain these production times, trees will need to be well maintained by controlling competing weeds through hoeing or mulching around tree bases, fertilization, and watering the young trees, particularly in the first season after transplanting. Hickories planted in a shaded wooded area may grow very slowly and take many years to produce nuts. Nut production is much better where trees are well spaced and receive maximum sunlight. The best hickory varieties produce yields in the 50- to 75-pound range per tree in good years. A very productive variety will bear nuts in threes (Figure 3), as opposed to singly or in pairs. Most hickory varieties have an alternate bearing tendency, producing a heavy crop one year followed by a light crop.



Figure 3. Large crop of Simpson No. 1 hickory nuts borne in threes.

Hickory Pests

Hickory pests include the pecan weevil and pecan scab. The pecan weevil emerges from the ground during nut hardening from late August through the end of September. The female chews a hole in the nut and deposits an egg, which hatches into a white grub that feeds on the nut kernel. When the grub is mature, it chews a hole through the shell during the late September to December period and drops to the ground. An earthen cell is made and the grub pupates, remaining in the soil for one to two years before hatching out and continuing the cycle. Weevils generally do not move much, and subsequent generations continue to feed on the same tree. Some hickory varieties have better weevil resistance than others. Guinea fowl, or guinea hens, and bantam chickens can substantially reduce this pest. Pecan scab is a fungus that is a serious problem for pecans. It can defoliate trees and lead to nut losses. This disease is less of a problem for hickories in Kentucky, only occasionally seen on shagbark trees and rarely on shellbark hickories.



Figure 2. Shellbark and shagbark nuts, left to right.

Photo courtesy: John Strang

Table 1. Shagbark and shellbark hickory tree, leaf, and nut characteristics.

Characteristics	Shagbark	Shellbark
Habitat	Upland areas across the state	Bluegrass Region with limestone
Mature trunk	Shaggy	Coarser plates than shagbark
Leaflets	5 with up to 7, terminal leaflet largest	7 with as few as 5 or up to 9, larger leaf
Terminal buds	Smaller	Larger, often retain bud scales 1-2 years
Husk	1/8 to 1/2 inch thick	1/4 inch thick
Nut shape	Round to ovate	Variable
Nut diameter	1 1/4 to 1 3/4 inches	1 3/4 to 2 1/2 inches
Shell	White in color, longer with a thin shell	Light brown, hard, and thick

Cracking and Extracting

After patiently cracking and extracting the meats from a few hickory nuts, one quickly realizes that nut size matters, but it is not

the primary consideration in determining nut suitability. Exceptional hickory varieties don't have just a good hickory flavor, they have nuts in which the meat will separate easily from the shell, leaving a large proportion of halves. If a hickory nut is sawed in half crosswise to view shell protrusions into the meat, an indication of shelling ease can be obtained. Figure 4 shows shell and nutmeat configurations for three different seedling trees for which nut meat extraction is more difficult. Figure 5 shows a Kreider shellbark hickory that cracks out relatively easily.

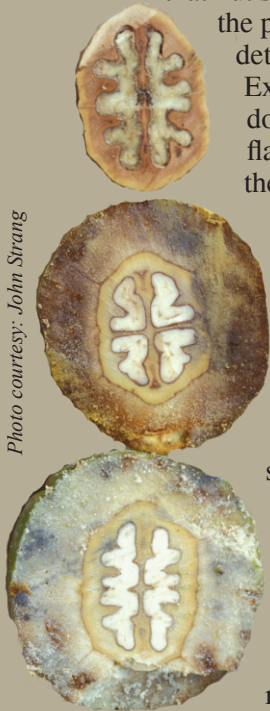


Photo courtesy: John Strang

Figure 4 Above. Shell and nutmeat relationship for three seedling shellbark hickories.

Figure 5 Below. Kreider is a very large shellbark hickory nut.



Photo courtesy: John Strang

Selling and Marketing Nuts

Think back to the last time that you went to the store and purchased shelled hickory nuts...still thinking? Unfortunately, hickory nuts are not bought and sold on a commercial basis. Part of the reason for this is that until recently there have been no commercial crackers for hickories as there are for pecans and black walnuts. So, nuts are generally cracked one at a time. When cracking hickory nuts, it helps to soak the nuts in water overnight to make the kernels more flexible and enable extraction of larger nutmeat portions. Another hard and fast rule when cracking nuts to store is to avoid tasting the nuts until the cracking and picking are completed. This assures that you will have more than a small quantity to store. Over time the oils in hickory nutmeats turn rancid, so it is best to store the nutmeats in freezer bags or tightly sealed containers in the

Table 2. Recommended hickory varieties.

Shagbark	Description
Bridgewater	Very large with 47% kernel
Cook Shag	Good flavored, oval flat nut that cracks out in halves
Grainger	Large nut that matures late and cracks easily, tree bears heavily
Porter	One of the best, good flavor, thin-shelled, cracks out in halves
Raudabaugh	Thin-shelled nut that cracks out easily
Silvis 303	Good quality, large, round, thin-shelled nut with 45% kernel, good self-fruitful producer
Wilcox	Medium-sized nut with very good flavor that cracks out in halves
Wilmoth	Large, good tasting, light-colored, thin-shelled nut
Wurth	Large, thin shelled nut that cracks out in halves and is a very good producer, scab resistant
Yoder No. 1	Excellent flavored nut that cracks out easily and bears early, variety is reported to shed weevil-infested nuts early in the season.
Shellbark	
Bullnut	Good bearing and cracking characteristics, nice yellow fall foliage color
Brouse	Open cavity, cracks out well
Daulton	Vigorous tree that produces very large nuts
Fayette	Large, good flavored thin-shelled nut with 33% kernel, tree bears annually and self-pollinates
Henning	Vigorous growing tree with a large, very attractive nut
Keystone	One of the best cracking shellbarks in which kernels fall free from the shell
Kreider	Very large nut that cracks out well
Lebanon Junction	Matures early, cracks out large, sweet kernels
Lindauer	Precocious heavy producer, large kernels crack out in whole halves, weevil resistant
Merle's Best	Excellent thin-shelled nut, good flavor, and cracks out in halves
Rausch	Open cavity, cracks out well
Selbher	Heavy bearing regular producer of medium-sized, thin-shelled nuts, cracks out very well, probably self-pollinates
Simpson No. 1	Heavy cropping, excellent flavored, medium-sized nut with an open cavity that cracks out well
Shellbark X Shagbark	
Mitch Russell	Precocious annual heavy producer, average-flavored nut, cracks out in half and whole kernels

freezer. Currently most hickory nuts are sold in the shell at farmers markets or on the Internet when they are available.

One of the most enjoyable aspects of hickories is their unique hickory flavor. Cherished memories are borne of sitting around a hot crackling fire on a cold winter day and patiently extracting and consuming the amber kernels. Pecan pies are excellent, but hickory nut pies are exceptional. Consider this the time to plant a few hickory trees and start a family tradition of hickory nut pies for the holidays!



Hickory sources — varieties and graft wood

- Nolin River Nut Tree Nursery in Upton, KY www.nolinnursery.com is a Kentucky nursery that sells excellent named varieties.
- Prospective growers can also usually find graft wood at the Kentucky Nut Growers' spring meeting held on Saturday in late April at the Hardin County Extension Office. This meeting and the Kentucky Nut Growers Association (www.pawpaw.kysu.edu/knga.htm) summer meeting often include grafting demonstrations.

Hickory Nut Crackers

- Fred Blankenship makes and sells the Mr. Hickory Nut Cracker, which works very well for hard-shelled nuts. For more information, call 270.272.7670.
- Clifford England, England's Orchard and Nursery, sells the Kenkel Hard-shell Nutcracker, which is also excellent for hickory nuts. For more information, visit www.nuttrees.net

References

- Jaynes, R., Editor. 1979. Nut Tree Culture in North America. The Northern Nut Growers Association, Inc., Hamden, CT. p. 35-40.
- Masabni, J., J. Strang, R. Jones, R. Bessin, and J. Hartman. 2007. Nut Tree Growing in Kentucky (ID-77) www.ca.uky.edu/agc/pubs/id/id77/id77.pdf
- Fred Blankenship, one of Kentucky's leading authorities on hickory varieties and their grafting, has developed a nice CD on hickory grafting for those interested in trying their hand.

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