**EASTERN BLACK WALNUT**

**Products:** Black walnuts, antifungal herbal medicine, and abrasives

**Plant parts used:** Fruit and hull

Eastern black walnut (*Juglans nigra*) grows best on sites with deep, moist, and well-drained soils. It reaches its greatest potential growing close to streams and on lower portions of north and northeast slopes. The tree is intolerant of shade and must be dominant or codominant in the canopy to thrive. In such conditions, eastern black walnut can reach heights of more than 100 feet, with diameters of 40 inches. Its natural range extends through most Eastern and Midwestern States (shown in green on the map below).

### Nontimber Uses

- Historically, Native Americans used the nut meat in soups and stews, for pickling, and as a condiment.
- In the early 20th century, ground shells were used as an abrasive to clean airplane pistons. They are still used for their abrasive qualities in a variety of applications.
- Today, the primary use of eastern black walnut fruit is for food; its distinct flavor makes it especially desirable in ice cream and baked goods.
- Unripe hulls are used in herbal medicine for gastrointestinal health and to treat skin ailments and fungal infections such as athlete’s foot.

### Markets

- One Missouri-based company commands most of the market for wild-harvested eastern black walnut fruit. Each year, more than 200 buying stations are set up in 14 States across the tree’s natural range.
- In the early 2000s, >25 million pounds of nuts were being processed each year with an annual value exceeding $2.5 million paid to harvesters.
- In 2017, the company purchased >45 percent of the total nut production from Missouri; Indiana, Kentucky, and Ohio contributed about 37 percent of production.
- Like sugar maple, black walnut can be tapped, and the sap processed into syrup. It is being promoted as an alternative to maple syrup.

### Key Points

- Though it is known more for its beautiful wood, eastern black walnut fruit is prized for food and medicine.
- The hard outer shell of eastern black walnut also has value as an abrasive.
- Anthracnose, a foliar disease, is threatening nut production.
- Thousand cankers disease, a disease complex caused by a beetle and a fungus, threatens the survival of the eastern black walnut. Estimated mortality has increased tremendously over the last 2 decades.
- The tree is favorable for agroforestry because of its many uses and foliar characteristics that allow light to penetrate to understory crops, although care should be taken in selecting plants to grow nearby.

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Learn more about nontimber forest products: Jim Chamberlain • james.l.chamberlain@usda.gov • https://www.srs.fs.usda.gov/staff/524

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Status

- Eastern black walnut has been found in Forest Inventory and Analysis (FIA) plots across 33 States, with the greatest number of trees per acre found in Iowa, followed by Kansas, Illinois, and Indiana.
- Over the years 2002–2017, there was an estimated net change in volume of approximately 0.27 cubic feet per acre, with the greatest positive change in Iowa (~3.4 cubic feet per acre), Indiana (~2.15 cubic feet per acre), and Illinois (~1.90 cubic feet per acre).
- Between 2002 and 2017, there was a positive net change in eastern black walnut volume per acre of forest land, although it has been declining since 2004 (see chart [A]).
- Estimated mean annual mortality of eastern black walnut increased almost 650 percent from 2003 to 2017 (see chart [B]).

Management and Implications

- Large nut production begins to occur when eastern black walnut trees are 20–30 years old and may continue for more than 100 years.
- Thousand cankers disease, caused by the walnut twig beetle (*Pityophthorus juglandis*) and associated *Geosmithia morbida* fungus, is threatening eastern black walnut survival, especially on poor sites with low precipitation.
- Controlling anthracnose, a foliar disease caused by the fungus *Ophiognomonia leptostyla*, is important for nut production, as healthy leaves are needed during the growing season to manufacture carbohydrates and stimulate pistillate growth.
- Widely spaced black walnut trees grown for nuts and intercropped with agricultural crops show high financial returns on investment. Proper crop selection is needed as eastern black walnut exudes the chemical juglone, which is toxic to some plants.
- Estimating potential nut production requires estimates of average annual fruit production.

References


Any medical or pesticide use described in this publication is for reader information and does not imply endorsement by the U.S. Department of Agriculture.

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