

Corylus americana

Betulaceae family

American hazelnut, American filbert

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Description: *Corylus americana* is a fast-growing, multi-stemmed, monoecious (male and female flowers separate on the same plant), rhizomatous, deciduous shrub. Flowering occurs before leaf emergence. Reproduction is by seed and vegetatively; rhizomatous sprouting is the more important mode of reproduction. Forms thickets by sprouting from rhizomes. Plants can reproduce after its first year.

Variation: *Corylus americana* has no recognized varieties at present, although has variants are described in past treatments. Cultivars have been developed by agronomists.

Size: Grows 3-15 ft. (1-4.6 m) tall, and its spread is slightly greater than height.

Leaves: Leaves alternate, simple, petiolate. Leaf blade/lamina broad-ovate to broad-elliptic; 2-6 in. (5-15 cm) long, 1.5-4.7 in. (3.8-12 cm) wide; apex acuminate; margins sharply serrate or doubly serrate; upper surface dark green; lower surface paler, sparsely to moderately pubescent; venation pinnate with 8 or fewer pairs of lateral veins; petiole with stiff glandular hairs.

Inflorescence:

Staminate (male) inflorescence: A pendulous catkin/ament, 1-8 in. (2.5-20 cm) long, yellowish-brown; catkins in clusters of 2-3; peduncles 0.04-0.2 in. (0.1-0.5 cm) long; 3 flowers per scale. Occurs on short shoots.

Pistillate (female) inflorescence: Tiny, inconspicuous, cone-like ament. 2 flowers subtended and enclosed by a scaly bract in a compressed cyme. Occurs near the end of twigs.

Flowers:

Staminate (male) flowers: Stamens 4, divided nearly to the base to form 8 half-stamens. 3 flowers per scale in the catkins.

Pistillate (female) flowers: Flower small, reduced; pistil 1, carpels 2, stigmas 2, bright red, protruding. 2 flowers subtended and enclosed by a scaly bract in the inflorescence.

Fruit: A nut, enclosed within an involucre of 2 large expanded leafy, coarsely-toothed (irregularly lacinate) bracts, involucre nearly twice as long as nut, 0.6-1.2 in. (1.5-3 cm)

long; 0.4-0.8 in. (1-2 cm) long, wider than long. Mature nut light brown, globose to ovoid.

Bark: Bark light gray to light grayish brown, smooth; as plant matures it develops a mild cross-cross pattern. Twigs light brown, pubescent with numerous stiff, red, glandular hairs.

Roots: The roots typically occur in the upper 6 in. (15 cm) of soil, with some smaller roots running vertically toward the soil surface, profusely branching in to very fine lateral roots. Rhizomes occur 4-6 in. (10-15 cm) below the soil surface; they sprout 1-2 ft. (30-60 cm) from the parent plant.

Habitat: *Corylus americana* occurs in dry to moist woods, in thickets, forest edges, woodlands, along streams, roadsides, and fencerows and disturbed areas. It prefers rich, moist, well-drained soils, but is also found in prairie and close to streamsides. It is shade-tolerant.

Species distribution in US states: AL, AR, CT, DC, DE, GA, IA, IL, IN, KS, KY, LA, MA, ME, MI, MN, MO, MS, NC, ND, NE, NH, NJ, NY, OH, OK, PA, RI, SC, SD, TN, VA, VT, WI, WV

Species images:

Whole plant:

http://www.uwgb.edu/biodiversity/herbarium/shrubs/corame_aspect01.jpg

<http://woodyplants.nres.uiuc.edu/plant/coram>

Bark:

<http://www.cnr.vt.edu/DENDRO/dendrology/syllabus/factsheet.cfm?ID=208>

older: <http://www.cas.vanderbilt.edu/bioimages/biohires/c/hcoam3-br38773.JPG>

<http://www.duke.edu/~cwcook/trees/coam3.html>

twig: http://www.uwgb.edu/biodiversity/herbarium/shrubs/corame_twig01.jpg

http://www.mathcs.richmond.edu/~tkostadi/trees/images/Corylus_americana_hairs.jpg

Leaf:

<http://www.forestryimages.org/images/768x512/0008344.jpg>

<http://www.forestryimages.org/images/768x512/0008345.jpg>

<http://www.cnr.vt.edu/DENDRO/dendrology/syllabus/factsheet.cfm?ID=208>

Leaf underside:

http://www.plantsystematics.org/imgs/kcn2/r/Betulaceae_Corylus_americana_6155.html

http://www.plantsystematics.org/imgs/robbin/r/Betulaceae_Corylus_americana_9309.htm

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Colored leaves:

http://msuplants.com/images/Corylus/Coryuamer_SA05_Oct25_5257.jpg
http://msuplants.com/images/Corylus/Coryuamer_SA07_Oct25_5263.jpg

Buds:

male: <http://www.forestryimages.org/images/768x512/0008498.jpg>
<http://www.forestryimages.org/images/768x512/0008499.jpg>
female: <http://wisplants.uwsp.edu/scripts/detail.asp?SpCode=CORAME>
http://msuplants.com/images/Corylus/Coryuamer_HT03_Nov1.jpg

Inflorescence:

Staminate (male) inflorescence:

http://www.mathcs.richmond.edu/~tkostadi/trees/images/Corylus_americana_male.jpg
http://msuplants.com/images/Corylus/Coryuamer_OF07_Apr5_MaleCatkins.jpg

Pistillate (female) inflorescence:

<http://www.duke.edu/~cwcook/trees/coam3.html>
http://www.uwgb.edu/biodiversity/herbarium/shrubs/corame_female_ament01.jpg

Flowers:

Staminate (male) flowers:

http://msuplants.com/images/Corylus/Coryuamer_OF05_Apr5_MaleCatkins.jpg
http://msuplants.com/images/Corylus/Coryuamer_OF04_Apr5_MaleCatkins.jpg

Pistillate (female) flowers:

http://www.wildflower.org/gallery/result.php?id_image=18905

Fruit:

on the plant:

http://www.uwgb.edu/biodiversity/herbarium/shrubs/corame_fruit01.jpg
http://msuplants.com/images/Corylus/Coryuamer_PR09_Sep6.jpg
<http://www.plantbio.ohiou.edu/trees/Corylus%20americana,%20winter.htm>

bracts removed:

<http://www.forestryimages.org/images/768x512/0008208.jpg>
http://plants.usda.gov/java/largeImage?imageID=coam3_002_ahp.tif

Expected timing of growth stages:

Flowering: March to May, depending on location.

Bud swell: *Need info.

Bud break: *Need info.

Leaf out: *Need info.

Leaf/canopy development: *Need info.

Bud formation: Floral buds form in summer-autumn, for the next spring. *Need info.

Fruit development: July-September.

Fruit ripening: September.

Seed dispersal: *Need info.

Leaf coloration: *Need info.

Leaf fall: *Need info.

Phenophases to be monitored for NPN:

Flowering

- *First pollen released* [**Intensive only**]
In at least 3 locations on the plant, pollen is released from a flower when gently shaken or blown. For *Corylus americana*, the male flowers from which pollen is released are arranged on catkins. Where catkins are out of reach, pollen release may be estimated by observing the degree of catkin elongation and looseness. Once the initially compact catkins have unfolded and are hanging loosely, pollen will be released.

Leaf out

- *First leaf*
In at least 3 locations on the plant, the very first green tip of a young leaf has visibly moved out of the leaf bud.

Leaf elongation

Note: These measures can be difficult to estimate without a few seasons of practice.

- *25% leaf elongation* [**Intensive only**]
The majority of young leaves have unfolded completely and have expanded to one-quarter (25%) of their mature size. Leaf elongation may also be estimated by viewing the canopy as a whole. At 25% leaf elongation, the canopy appears to be approximately one-quarter (25%) full.
- *50% leaf elongation* [**Intensive only**]

The majority of young leaves have unfolded completely and have expanded to half (50%) of their mature size. Leaf elongation may also be estimated by viewing the canopy as a whole. At 50% leaf elongation, the canopy appears to be approximately half (50%) full.

- *75% leaf elongation*
The majority of young leaves have unfolded completely and have expanded to three-quarters (75%) of their mature size. Leaf elongation may also be estimated by viewing the canopy as a whole. At 75% leaf elongation, the canopy appears to be approximately three-quarters (75%) full.
- *Full leaf elongation [Intensive only]*
The majority of young leaves have unfolded completely and have expanded to 95-100% of their mature size. At full leaf elongation, the canopy appears to have reached its full density.

Fruit ripening

- *First fruit ripe*
In at least 3 locations on the plant, a fruit has become ripe. In *Corylus americana*, a fruit is considered ripe when the bracts have opened fully to release the brown nut inside. Ripeness may also be indicated by the presence of at least 3 fresh hazelnuts on the ground below the plant (that are not apparently from a nearby individual).
- *50% of fruit ripe [Intensive only]*
For the whole plant, half (50%) of the fruits are ripe. In *Corylus americana*, this occurs when half (50%) of the fruits have fully opened bracts.
- *All fruit ripe [Intensive only]*
For the whole plant, virtually all (95-100%) of the fruits are ripe. In *Corylus americana*, this occurs when all (95-100%) of the fruits have fully opened bracts.

Leaf color change

Note: If drought seems to be the cause of leaf color change for a plant, please make a comment about it for that plant.

- *First leaf colored [Intensive only]*
In at least 3 locations on the plant, the green leaves have begun to change to their late season colors.
- *25% of leaves colored [Intensive only]*

For the whole plant, one-quarter (25%) of the leaves (including any that have fallen to the ground) have changed to their late season colors.

- *50% of leaves colored*
For the whole plant, half (50%) of the leaves (including any that have fallen to the ground) have changed to their late season colors.
- *75% of leaves colored [Intensive only]*
For the whole plant, three-quarters (75%) of the leaves (including any that have fallen to the ground) have changed to their late season colors.
- *All leaves colored*
For the whole plant, virtually all (95-100%) of the leaves (including any that have fallen to the ground) have changed to their late season colors and there is virtually no green left in the leaves.

Leaf fall

Note: If drought seems to be the cause of leaf fall for a plant, please make a comment about it for that plant.

- *First leaf fallen [Intensive only]*
In at least 3 locations on the plant, a leaf easily falls off into your hand when touched or gently handled. First leaf fallen may also be indicated by the presence of at least 3 leaves on the ground below the plant (that are not apparently from another individual nearby).
- *25% of leaves fallen [Intensive only]*
For the whole plant, one-quarter (25%) of the leaves have fallen.
- *50% of leaves fallen*
For the whole plant, half (50%) of the leaves have fallen.
- *75% of leaves fallen [Intensive only]*
For the whole plant, three-quarters (75%) of the leaves have fallen.
- *All leaves fallen*
For the whole plant, virtually all (95-100%) of the leaves have fallen.

Did you know? *Corylus americana* nuts were used by Native Americans to flavor soups. The plant is used medicinally. The bark, leaves, twigs, catkins, and nuts of the plant are utilized by many animals.

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Notes

The USDA PLANTS symbol for this plant is COAM3.
The ITIS Taxonomic Serial No. for this species is 19506.

BBCH codes for phenophases used for this plant are available from the USA-NPN office
upon request.

Proposed modifications, updates or corrections to this protocol are welcome; please direct
correspondence to the USA-NPN National Coordinating Office.

Prior versions of this species protocol will be made available in a documents library on USA-NPN webpage.

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