

Lyis: *Juglans ailantifolia* var. *cordiformis* (Heartnut)

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📖 LyisForestry

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1 Introduction to *Juglans ailantifolia* var. *cordiformis* (Heartnut)

1.1 Description of the Plant

Juglans ailantifolia var. *cordiformis*, commonly known as Heartnut, is a rare and endearing form of Japanese walnut, best known for its deeply lobed, heart-shaped nuts that crack cleanly and symbolize love and abundance. This broad-crowned, deciduous tree typically reaches 10–15 m in height and spread, with a graceful open form and attractive, pinnately compound leaves 40–90 cm long that turn a golden yellow in autumn. Its ornamental beauty is matched by its productivity.

Heartnut is monoecious, bearing male catkins up to 30 cm long in late spring, along with small, clustered female flowers near the branch tips. However, because the timing of pollen shed and female receptivity often do not align on the same tree, heartnut is functionally self-infertile and requires a second, genetically distinct tree nearby for reliable nut production. By early fall, the nuts ripen inside semi-fleshy green husks that dry and split open, revealing smooth, tan shells easily opened by hand or nutcracker. Inside is a plump, sweet kernel with a delicate flavor—one of the easiest to extract in the walnut family, making it a favourite among both gourmet chefs and foragers.

1.2 Historical and Cultural Context

First cultivated in Japan where its parent species symbolized wisdom and long life, Heartnut arrived in Europe and North

America in the late 19th century, gaining notoriety through the work of famed plant breeder Luther Burbank, who praised its striking shell and easy-to-extract nut. It was adopted into small orchards and farmsteads from Ontario to Oregon, where its cold tolerance (to about -30°C) and beauty found eager stewards.

Though never widely commercialized, Heartnut's unique form and taste earned it a loyal following among nut enthusiasts, homesteaders, and permaculturists. Today, it is celebrated in edible landscaping and regenerative agroforestry circles for its symbolism, productivity, and rare combination of aesthetics and utility.

1.3 Edible, Medicinal, and Useful Properties

Edible: The heartnut kernel is rich in oils (60 %), protein (16 %), and essential nutrients including vitamin E, magnesium, and omega-3 fatty acids. Its mild, buttery flavor makes it ideal for fresh eating, roasting, baking, or grinding into nut butter or flour. The nut milk produced is smooth and subtly sweet, while the nut's clean shape and shell split make it excellent for value-added products and gift packaging.

Medicinal & Traditional Uses: As with other *Juglans* species, the leaves and green husks contain juglone and tannins, which were traditionally used in decoctions and poultices for skin ailments, parasites, and fungal infections. The bark and leaves

can be steeped to produce astringent washes, while the husks have been used to create deep brown natural dyes for fabric, wool, or wood stains.

Wood: Heartnut's wood is a hidden treasure: light to medium brown with a fine grain and moderate density, it is well-suited to turning, carving, cabinetry, and fine furniture. Though not as dark as black walnut, it offers an excellent substitute with ease of workability, especially for small-scale wood-working. With its limited availability, heartnut lumber is prized by artisan woodworkers and fetches a premium in specialty markets.

Ecological and Agroforestry Value: Heartnut supports pollinators during flowering and feeds wildlife including squirrels, chipmunks, and blue jays. Its canopy creates dappled shade ideal for shade-tolerant herbs, berries, or mushroom cultivation beneath. It can also function as a long-lived nut crop in food forests or silvopasture systems. Its deep roots improve soil structure over time, making it an asset for ecological restoration and long-term land stewardship.

In essence, Heartnut is not just a tree—it is a living story of nourishment, heritage, and renewal. With its gift of food, shelter, medicine, and beauty, it offers a legacy worth planting.

2 Planting Outdoors

1. **Site selection** — Full sun (≥ 6 h \cdot day⁻¹); well-drained loam or sandy-loam, pH 6.0–7.5. Heartnut tolerates clay if waterlogging is absent.
2. **Soil preparation** — Remove sod and stones; incorporate up to 5 % (by volume) composted manure in the top 30 cm. Avoid fresh manure which can burn roots.
3. **Planting** — Dig a 60 cm wide cubic hole, no deeper than the seedling pot. Set the seedling so the root flare is flush with the finished grade; back-fill, firm, and water 10 L immediately.
4. **Spacing** — 8–10 m between trees (100 m² each) provides crown clearance and airflow for disease reduction.
5. **Mulch & weed control** — Apply a 7–8 cm deep ring of wood chips,

leaving 10 cm clear around the trunk. Keep grass and weeds out of a 1 m radius.

6. **Browsing protection** — Use a 1 mm mesh tree guard 1.2 m tall or welded-wire cage if rabbits, deer, or voles are present.

3 Ongoing Plant Care

1. **Watering** — Year 1–2: 20 L \cdot week⁻¹ during dry spells. Mature trees withstand short droughts but yield best with 25 mm rainfall equivalent weekly in midsummer.
2. **Fertilisation** — Each early spring broadcast 150 g of a balanced 10-10-10 organic fertiliser per cm trunk diameter (DBH). Excess N delays bearing.
3. **Pruning** — Train to a single leader for the first 4 years; thereafter remove crossing, dead, or shaded-out limbs in late winter. Keep the first scaffold at 1.8 m to aid ground clearance for nut collection.
4. **Pest & disease** — Monitor for walnut husk fly, codling moth, and bacterial blight. Rake up husks after harvest, encourage beneficial insects, and apply kaolin clay film if infestations reach threshold.

4 Winterizing

Young trunks are susceptible to sunscald and rodent girdling.

- Wrap the lower 60 cm with white tree-wrap or 6 mm hardware cloth each November, removing in April.
- Maintain the mulch ring but pull chips back 10 cm from bark.
- Deep-water (30 L) once after leaf-fall if autumn rainfall is < 50 mm.

5 Harvesting and Storage

5.1 Signs of Maturity

Seed-grown trees fruit in 5–7 years (grafted selections 3–4 years). Nuts ripen mid-September to early October when husks yellow-brown and fracture. A gentle shake dislodges ripe clusters.

5.2 Method & Tools

Spread a tarp beneath the canopy and pole-shake, or collect fallen nuts daily to deter squirrels. Wear gloves—husks stain.

5.3 Post-Harvest Handling

1. De-husk promptly (boot scrape or rubber drum).
2. Rinse, then air-dry on mesh trays at 20–25 °C and < 65 % RH for 14–21 days until the kernel rattle is audible.
3. Store in breathable bags at 0–4 °C for up to 12 months, or vacuum-seal and freeze for longer shelf-life.

6 Propagation

- **Seeds** — Stratify fresh nuts for 90–120 days at 1–4 °C. Sow 5 cm deep in nursery beds; protect with rodent screen.

- **Grafting** — Bench-graft scions onto 1-year *Juglans ailantifolia* or *J. regia* rootstocks in late winter; whip-and-tongue gives the highest take.
- **Greenwood cuttings** — Possible but low success; use mist bench and 4000 ppm IBA.

7 Recipes and Usage Ideas

Roasted Heartnuts Spread 250 mL whole nuts on a tray; roast at 170 °C for 12 min. Cool, crack, and enjoy.

Heartnut “Milk” Blend 125 mL kernels with 500 mL water, a pinch of sea salt, and 5 mL maple syrup. Strain through muslin for a creamy beverage.

Maple-Heartnut Brittle Boil 250 mL maple syrup to the soft-crack stage (140 °C), stir in 175 mL chopped heartnuts, pour onto a parchment-lined sheet, and cool.

Savoury Crunch Toss 60 mL chopped toasted heartnuts over steamed greens or pumpkin soup for texture—no need for croutons or seed-oil dressings.

Regular consumption, like other tree nuts, supports heart health and supplies antioxidants.