



**RODALE**  
INSTITUTE™

# **ORGANIC** **CONSULTING**

**FIELD GUIDE**

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**ORGANIC HAZELNUT  
PRODUCTION  
FIELD GUIDE**

# SITE SELECTION & PREPARATION

## RECOMMENDED PRACTICES

- **Climate:** Hazelnuts thrive in temperate regions with mild, wet winters and dry summers. They require ~800–1200 chilling hours and are sensitive to extreme cold.
- **Soil:** Prefer well-drained, loamy soils with a pH of 6.0–7.5. Avoid heavy clay or poorly drained areas.
- **Slope & Airflow:** Gentle slopes are ideal for air drainage, reducing frost and disease pressure (especially Eastern Filbert Blight).
- **Sunlight:** Full sun exposure is critical for nut fill and yield.
- **Wind Protection:** Shelterbelts may be needed, as strong winds can damage branches and reduce pollination success.

## ACTION ITEMS

- Conduct soil tests for pH, organic matter, and drainage capacity.
- Install subsurface drainage if waterlogging risk exists.
- Amend soils with lime or sulfur as needed for pH adjustment.



Rodale Institute's Harold M. Schantz Organic Agroforestry Center at Spring Valley Farm.

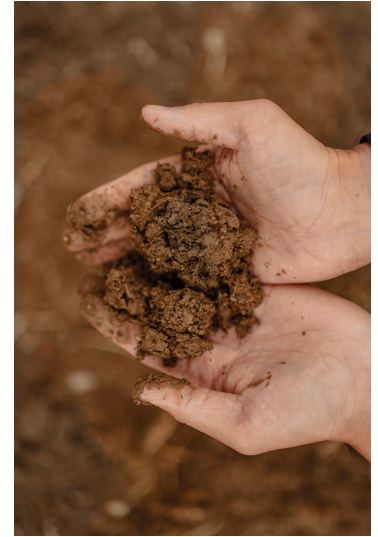
# SOIL MANAGEMENT

## RECOMMENDED PRACTICES:

- Maintain 3–5% soil organic matter with compost, manure, or cover crops.
- Use perennial cover crops (clovers, fescues) in alleys to reduce erosion, improve trafficability, and support beneficial insects.
- Apply organic mulches (wood chips, straw) around trees to conserve moisture and suppress weeds.

## ORGANIC INPUTS (OMRI-LISTED):

- Rock phosphate for phosphorus.
- Sulfate of potash-magnesia or kelp meal for potassium.
- Feather meal, fish meal, or composted manures for nitrogen.



# VARIETY SELECTION

## RECOMMENDED CULTIVARS:

- **Blight-resistant:** ‘Jefferson’, ‘PollyO’, ‘Yamhill’, ‘McDonald’, and ‘Wepster’ (developed by Oregon State University breeding program).
- **Pollinizers:** Hazelnuts are wind-pollinated and self-incompatible; plant compatible pollenizer varieties (e.g., ‘Eta’, ‘Gamma’, ‘York’) throughout the orchard.

## TIPS:

- Maintain at least 10–15% pollenizer trees distributed evenly.
- Stagger bloom times for adequate cross-pollination.



# PLANTING

## TIMING:

- Late fall or early spring, depending on climate.

## SPACING:

- Trees: 15–20 feet apart.
- Rows: 20 feet apart for machinery access.

## TIPS:

- Plant graft union above soil line.
- Water immediately after planting and apply mulch.



# IRRIGATION

## BEST PRACTICES

- Hazelnuts are moderately drought-tolerant but require supplemental irrigation for high yields, especially during nut fill (July–August).
- Use **drip irrigation** or **micro-sprinklers** for efficiency and reduced disease risk.
- Target ~1–1.5 inches of water per week during growing season.

# PEST MANAGEMENT

## KEY PESTS:

- Filbertworm (*Cydia latiferreana*)
- Hazelnut aphid
- Filbert leafroller
- Voles and squirrels

## MONITORING & PREVENTION:

- Use pheromone traps for filbertworm.
- Scout regularly for leafrollers and aphids.
- Manage orchard floor vegetation to limit vole habitat.

## CULTURAL & BIOLOGICAL PRACTICES:

- Encourage natural predators (lady beetles, lacewings, owls).
- Sanitation: Remove and destroy infested nuts after harvest.
- Habitat: Install raptor perches or nest boxes for rodent control.

## APPROVED ORGANIC INPUTS (LAST RESORT):

- Spinosad for filbertworm (rotation to prevent resistance).
- Horticultural oils and neem for aphids.

### FILBERTWORM

**What it is:** Filbertworm (the moth *Cydia latiferreana*) is a major insect pest; larvae feed inside nuts, which reduces yield and quality. Conventional growers often rely on synthetic insecticides; organics must use alternatives.

#### Organic specific challenges:

- Fewer insecticide options; organic-approved ones often have lower persistence or efficacy, sometimes only useful in narrow windows.
- Monitoring is critical: detecting pest pressure early requires traps, regular checks, and good predictive tools. Delays mean damage is done.
- Biological controls or mating-disruption tools work, but setting them up properly (coverage, timing) is often labor-intensive. Some organic growers report success, but often it's more work.

#### What's being done / possible mitigation:

- Tools like mating disruption (pheromone-based) are being adopted by some organic growers.
- Cultural steps: cleaning up (removing fallen nuts that harbor larvae), managing ground cover/weeds (that may hide pests), etc.
- Developing predictive models and trap-based decision making to reduce unnecessary treatments.

# DISEASE MANAGEMENT

## KEY DISEASES:

- **Eastern Filbert Blight (EFB)** – primary concern in North America.
- Bacterial blight (*Xanthomonas*).
- Crown gall.

## CULTURAL PRACTICES:

- Plant resistant cultivars whenever possible.
- Prune and destroy infected branches 2–3 feet below cankers.
- Avoid overhead irrigation to reduce bacterial blight spread.

## ORGANIC CONTROLS:

- Copper-based sprays for bacterial blight (limited use).
- Biological fungicides (*Bacillus subtilis*, *Trichoderma* spp.) as preventive measures.

### EASTERN FILBERT BLIGHT (EFB) AND EMERGING STRAINS

**What it is:** EFB (caused by *Anisogramma anomala*) is a fungal pathogen that causes cankers, branch dieback, and tree death. It has a long latent period (often over a year) before symptoms appear.

#### Organic specific challenges:

- Organic systems have more restricted fungicide options (both in type and frequency), so management relies heavily on prevention: cultivar resistance, aggressive pruning/removal of infected tissue, and cultural hygiene.
- Resistance genes (notably the “Gasaway” gene) that many newer cultivars rely on are being overcome by newly discovered EFB strains in PNW. These new strains can infect trees previously thought resistant.
- High labor costs associated with scouting, pruning, and removal of infected material. These tasks are more frequent and intensive when managing for EFB, especially under low-chemical/organic constraints.

#### What’s being done / possible mitigation:

- Breeding for quantitative resistance (not just single-gene) to get more durable resistance.
- More frequent and thorough orchard scouting, early detection and removal of infected branches.
- Use of cultural controls: spacing, pruning to improve airflow, reducing inoculum sources outside the orchard (escaped trees, wild hazelnuts).

# WEED MANAGEMENT

## STRATEGIES:

- Mulching with straw, wood chips, or composted yard waste.
- Alleyway cover crops for competition suppression and soil protection.
- Mowing and string trimming between rows.
- Flame weeding or mechanical cultivation in early establishment years.

## CONSIDERATIONS:

- Hazelnuts are deep-rooted; less sensitive to shallow cultivation than blueberries.
- Mulch replenishment needed every 2–3 years.



# PRUNING & MAINTENANCE

## PRINCIPLES:

- Maintain a single-trunk, tree form (standard) or multi-stemmed bush depending on cultivar and management preference.
- Remove suckers annually from the tree base.
- Thin interior branches to improve airflow and reduce EFB risk.

## TIMING:

- Late winter during dormancy for structural pruning.
- Summer sucker removal as needed.

## TOOLS:

- Hand pruners, loppers, saws; sanitize between trees.

# HARVESTING

## TIMING:

- September–October, depending on variety and region.
- Nuts fall naturally when mature.

## BEST PRACTICES:

- Shake trees or sweep orchard floor to collect nuts.
- Harvest frequently to prevent mold or wildlife losses.

## POST-HARVEST HANDLING:

- Dry nuts immediately to 8–10% moisture to prevent fungal growth.
- Store at 32–35°F with low humidity for extended shelf life.



# SALES & MARKETING

## MARKET OPPORTUNITIES:

- Strong demand for organic hazelnuts in both domestic and international markets.
- Sell in-shell at farmers markets, co-ops, and specialty grocers.
- Value-added products include roasted kernels, nut butters, spreads, flours, and confectionery (e.g., chocolate-hazelnut products).

## AGRITOURISM:

- U-pick hazelnut days, farm tours, and culinary events can provide diversified revenue.



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