

When you get your order: Immediate Care

When your new trees and shrubs arrive, they need to be planted as soon as possible. Don't be deterred by snow. If you can dig a shovel into the ground, plant your trees. If you wait until spring is in full swing, your plants might become stressed and have a hard time recovering.

Sometimes frozen ground makes immediate planting impossible. When this is the case, follow the instructions below and all will be well. **Why do we send plants even when there is snow on the ground?** The weather may be fickle but we must be steady. Bare-root plants need to move out of storage and travel to their permanent homes before or as they are breaking dormancy, but not much later. For our system to work, we must follow a tight shipping schedule regardless of regional weather conditions. We begin shipping late March and finish mid-April, sending orders by climate zones, warmer zones first.

DO NOT ALLOW ROOTS TO DRY OUT AT ALL!!!

If you can't plant immediately and are unable to store or heel in plants as instructed below, ordering bare-root plants may not be right for you.

Planting Woodies Within 48 Hours

Leave the plastic wrapping around the root ball. Add some water to re-moisten the packing material and store your trees and shrubs in a cool shaded place like a shed, barn or cellar. Avoid heat and sunlight.

If You Cannot Plant Within 48 Hours

You can keep plants for a week or two by following one of these temporary measures and continuing to water as needed.

- Open your package and inspect for damage. Fold the plastic back from around the tops. Keep the wet shredded newspaper around the roots and re-wrap the plastic around the root ball, packing firmly to eliminate air pockets. Water as needed to keep the roots moist, but don't let them stand in water. Keep the trees in a cool shaded or dark place like a shed, barn, cellar or garage but don't allow the plants to freeze before you get them in the ground. Avoid heat and sunlight.

- You could also "heel in" your plants temporarily in a protected cool shady spot. Dig a trench or turn back an appropriate amount of earth and bury the roots; tamp firmly to remove air pockets. Water thoroughly. Plant as soon as possible.

Caring for Other Plants Until Planting Time

Asparagus

Store asparagus roots dry and uncovered in a cool shaded place.

Hops

Refrigerate slightly moistened rhizomes in a plastic bag until planting.

Horseradish & Rhubarb

Open package slightly to allow the plants to breathe.

They should be fine left in their packaging and kept in a cool place (ideally 35–50°). They want to stay moist but not wet.

Mushroom Spawn

Refrigerate in packaging until ready to use.

Strawberries

We ship with the roots slightly on the dry side. If it's going to be a while until planting, mist the roots and re-cover. Refrigerate until you are ready to plant.

When it's time to plant, do it in the evening or on a cloudy day.

Herbaceous Perennials

Open bags and check the stock immediately. Roots and crowns should be firm and pliable, not squishy or brittle. If they are slightly dry, add a little water, or, if they are going to be potted up soon, wet the roots. Generally, a little surface mold is harmless and will not affect the plant's future performance. Pot up crowns and roots; **do not plant directly outdoors**. If you cannot pot the crowns up immediately, store them in a cool (35–40°) location for a short time.

See page 55 for full planting instructions.

The Perfect Tree Label

Commercially available garden labels do not last. Permanent marker always fades. Aluminium tears off in the wind. And so on. Now, we make our own. We use vinyl siding. Vinyl siding works so well, we should remove it from all the houses in the world and make it all into plant labels. It's inexpensive, or easily salvaged, and you can make dozens from a single piece of siding. Cut siding into strips using a utility knife. Snip strips to length using hand pruners. Drill a hole at one end. Attach with wire. Write information on labels with pencil, NOT a marker. Pencil will last for decades.

TREE PLANTING AND CARE

The basics of tree care outlined here are meant to get you going. Obviously, we can't tell you everything you need to know in a few pages. Some specific information, like location or soil preferences of particular plants, is in the item descriptions. A soil test is useful in determining the specific needs of your site. Fedco's Organic Growers Supply offers a soil testing and fertilization recommendation service. Learn more at fedcoseeds.com/ogs.

Reading, observation, trial and error, and talking with other growers and with extension agents can expand your knowledge of trees and shrubs. Consult the OGS book list for recommended reference books. Also, find useful links at our website, fedcoseeds.com/trees.

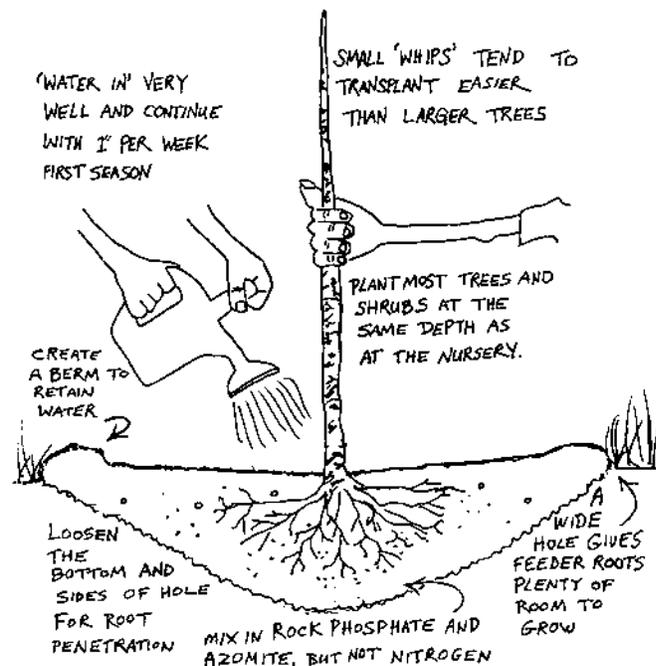
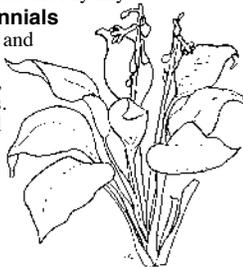
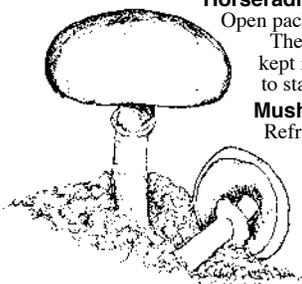
General Planting Directions for Trees and Shrubs

The best way to ensure your plants will thrive is to follow cultural requirements. Choose the right site for the plant. Add soil amendments only as needed. Many native plants don't require any fertilization. Fruit trees may need more. (See next page for fruit tree fertilization recommendations.)

To reduce transplant shock, plant on cool cloudy days in the early morning or late afternoon. Soak roots of deciduous trees and shrubs for up to 24 hours before planting, but not longer. Keep the roots from drying out; even a few minutes in the sun and breeze can kill a tree or shrub. Keep them watered and covered until the moment you set them in their planting holes!

Follow these steps for planting:

1. **Dig a large hole**, at least twice as wide and about as deep as the root system. Most roots grow laterally and need plenty of room to spread out. Your trees will benefit if the hole is at least 3' wide.
2. **Loosen up the soil** at the bottom of the hole and especially around the sides. For fruit trees, if you haven't used a deluxe fall preparation, you may add a 3-lb bag of our planting mix (available from the **Organic Growers Supply** section of the Fedco Seeds catalog), or well-aged compost and mineral fertilizers like rock phosphate or azomite, but *not* manure or other nitrogen sources. Incorporate into the soil, then make a mound at the bottom of the hole over which to spread the roots.
3. **Examine the plant for a "dirt line"** or a change in bark color indicating nursery depth. (This is different from the graft line.) Generally, you should plant trees and shrubs at the same depth they grew in the nursery. Set the plant in the hole and spread the roots out around the mound. Make sure the roots are not circling in the hole. It's better to trim roots a bit than coil them. Hold the plant at the right depth as you backfill the soil around it. Tamp firmly to remove air pockets.
4. **Water immediately**. Don't skimp on the initial watering; make sure there's plenty to settle in all the loosened soil. Wiggle the trunk as the water seeps in to ensure no air pockets remain around the roots. Leave a berm around each tree so water will not run off. Keep trees well watered throughout the first summer. They require the equivalent of 1–2" rain per week. A good soaking is effective; sprinkling is not.
5. If you want to remember which varieties you planted, paint a map of the orchard on your wall, or replace the plastic Fedco plant tags with permanent vinyl tags. See below left.



Choosing a Site for Fruit Trees and Berries

The best sites for fruit crops have well-drained fertile soils, protection from wind, good air drainage and full sun. A gentle slope and 6–8 hours of full sun per day is ideal. Good air flow will moderate frosts and fungal disease. If possible, avoid “frost pockets.”

Sunny south- or west-facing slopes are not advisable for less hardy varieties. These slopes tend to warm up before the danger of frost has passed. Trees may flower prematurely and then be damaged by frost, causing loss of fruit. South and west slopes may also have widely fluctuating early spring temperatures that can damage less hardy trees.

Soil pH for fruit trees should be between 5.5 and 8.0, towards the lower end for apples, the higher end for peaches, and in the middle for others.

Fruit species have optimal space requirements. See chart on next page.

Do not plant trees where power lines will interfere with them.

Fall Preparation or Spring Initial Feeding for Fruit Trees

If you're interested in preparing locations for your trees this fall, or for feeding newly planted fruit trees, the following amendment recipe should address most sites in the eastern U.S., which tend to be acidic and moderate to low in calcium and phosphorus. To order any of these products, refer to the **Organic Growers Supply** section of our Seeds catalog or website.

Deluxe Fall Preparation Method

Without digging the hole, cover an area 4–6' in diameter with:

- 5 lbs gypsum or Hi-Cal lime
- 5 lbs colloidal phosphate (short-term calcium and phosphorus)
- 5 lbs azomite (long-term minerals and trace minerals)
- 5 lbs granite meal or greensand (for improved soil texture)
- 2–3 lbs menefee humates (aids mineral and rock-powder breakdown)

For building high levels of humus, also add:

- 2 lbs alfalfa meal
- 2 lbs bone char or bone meal
- 2 lbs kelp meal
- 2 lbs blood meal
- 100 lbs compost (1/8 yard)
- BioDynamic preps (optional)

Cover with a 3–4" mulch of lawn clippings, leaves or “brush” chips, which will smother the sod, conserve moisture, prevent leaching and provide a habitat for soil organisms to break down the recipe. In the spring, pull back the mulch and dig your tree hole, incorporating the mineral supplements and compost into the backfill.

If you didn't get around to fall prep, you can apply this same mix as a mulch to your newly planted tree in the spring.

Simpler Method

Forgo the soil amendments and simply pile 1–2 wheelbarrows of compost on each planting-hole site. If you live by the ocean, add a couple wheelbarrows of seaweed. Then cover with mulch. In the spring, pull back the mulch and plant your fruit tree, incorporating the compost into the hole as you dig.

Feeding Older Fruit Trees

Cover the surface of the ground out to the tree's drip line with the same materials listed above. For larger trees (five years and older) increase the mineral amount to 10–15 lbs each. For ancient trees you can use up to 25 lbs of each mineral in a ring beneath the drip line.

For revitalizing older fruit trees, you could also consider using our Ancients Rise fertilizer mix from Organic Growers Supply.

Mulch as described above.



Sure, you can name a tree, categorize it, safely identify it. But that tree exists, living the fullness of its quiet life, even if in its long history no man ever stood before it and labeled it... It knows itself already and mysteriously encounters the sun each day, nameless.

–Ivan M Granger, from his website poetry-chaikana.com

Initial Pruning at Planting Time

All Trees and Shrubs

Prune any branches that were broken during shipping. Sometimes we need to prune a central leader in order to fit a tree into a shipping box; don't worry—a new leader will grow from the topmost bud. Prune all dead or injured branches and roots. Further pruning of most trees is not necessary at planting time.

Do not prune tops or prune or bend tap roots of nut or oak trees.

Find general information on pruning on p. 43. Conifers (p. 33), roses (p. 47) and lilacs (p. 50) benefit from special pruning especially in later stages of growth.

All Fruit Trees

Avoid pruning young trees except to establish a basic shape, as it delays bearing. It's okay to cut off extra trunks and large branches as needed, but keep in mind that every time you prune potential leaf-bearing branches from a young tree, you set it back. The tree will grow quickly and fruit sooner if you allow it to maximize photosynthesis. Once it begins to fruit, you can prune annually. Always remove suckers or root shoots.

On peaches and plums, the trees may want to develop 2–4 leaders, or an open-vase shape. Always prune just above a good strong bud that faces a direction you'd like your branch to grow. On apple and pear trees, you may choose to either leave the central leader alone and let it grow or cut it back according to the instructions below. Either way is acceptable; it's a matter of personal preference.

Apple Trees

Apple trees will almost always benefit from light initial pruning to establish shape. After that, refrain from pruning until the tree begins to fruit.

• **Year one (initial planting time):** If the tree is a branch-less “whip,” you may cut the top back to a strong bud about 3–4' from the ground. This will encourage branching. If the new tree arrives *with* branches, prune off all but 3–4 branches at the height you'd like for your first tier, about 3–4' from the ground, or higher if you prefer. The lowest scaffold (branch layer) should be very wide to collect as much sun as possible. If too low, these long branches will rest on the ground under the weight of fruit, and the deer will have a field day. Also, it becomes difficult to mow, mulch, etc.

Some folks choose not to prune at the time of planting and wait to shape the tree in subsequent years. This method is fine, too.

• **Year two:** Trim off root suckers or other odd branches that come up from around the base. Otherwise, leave the tree alone and let it grow.

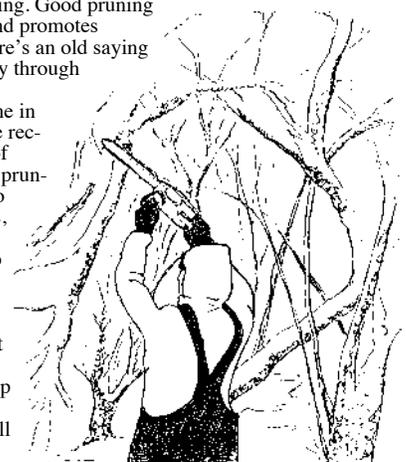
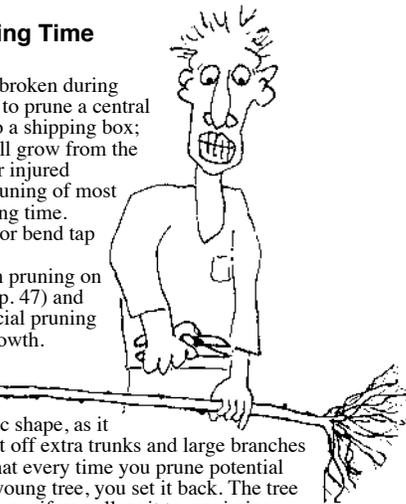
• **The next few years:** If something looks really crowded, broken or dead, prune it. Otherwise, leave your tree alone and let it grow. If you don't fuss over it too much, you'll get fruit sooner!

Pruning Established Fruit Trees

Once your fruit tree begins to bear, you should prune annually. Good pruning brings sunlight to all parts of your tree. Maximum sunlight encourages more and higher-quality fruit. Sunlight also encourages fruit buds to form for next year's crop. A well-pruned tree will produce larger fruit and will tend toward more annual bearing. Good pruning discourages fungal diseases and promotes greater spray penetration. There's an old saying that a bird should be able to fly through your fruit tree.

Most pruning should be done in late winter or early spring. We recommend a good-quality pair of hand shears and a lightweight pruning saw. You may also wish to invest in long-handled loppers, a pole pruner or a pole saw. Keep your pruning tools sharp for smooth, clean cuts.

Any good book on growing fruit trees will have the information you need. Consult old and new books as well as orcharding articles and develop a system that works for you. Pruning is not difficult and will make a huge difference.



Orchard Ladders

Sturdy lightweight traditionally shaped wooden orchard ladders have wide bottoms for stability and narrow tops for easy handling and placement.

Contact the manufacturer:
Peter Baldwin, (207) 722-3654
baldwinpetert@gmail.com
baldwinappleladders.com

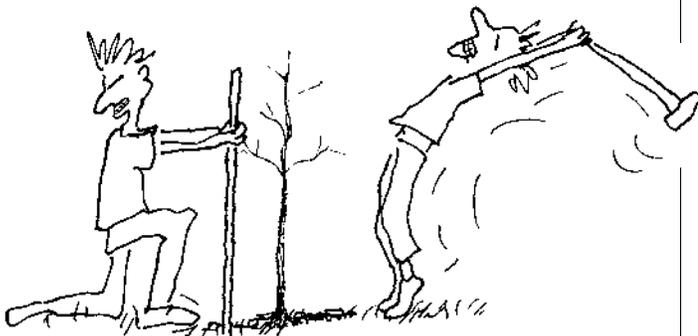
Mulch

Keep weeds and especially grass away from new trees and shrubs. Apply a 2-4" mulch of composted material—leaves, wood chips or hay—out as far as the drip line. A 1/2-1" topdressing of alfalfa meal beneath the mulch may substantially reduce transplant shock. Keep mulch back several inches from the tree trunk. We lay down cardboard or newspaper and spread mulch on top of it. Mulch encourages earthworms, holds moisture, keeps down weeds, insulates against excess heat and cold, aerates and loosens soils, builds humus and fertilizes feeder roots, 90% of which are within 6" of the surface.



Staking

Newly planted standard-sized fruit trees and ornamental trees seldom need staking. Semi-dwarf and dwarf trees may require staking. If your tree is in a very windy site or develops a leaning habit, staking may help. Drive a stout post near the tree. Wrap the tree trunk with a scrap of burlap or rubber to protect against abrasion. Secure the wrapped part of the tree to the post with string or wire. Tie the tree somewhat loosely, as a slight rocking motion will encourage rooting. Once roots are well anchored, the stake may not be needed. Mark small trees with a stake with ribbons to warn operators of lawn mowers, tractors, cars and skidders.



Spacing of Fruit Trees, Nut Trees & Berries

	between plants	between rows
Apples, Dwarf	7-8'	15'
Apples, Semi-dwarf	15'	15'
Apples, Standard	25-30'	25-30'
Asparagus	1-2'	4'
Blackberries	3-4'	6-12'
Blueberries, highbush	3-6'	8-10'
Blueberries, lowbush	1'	1'
Grapes	8'	8-10'
Hazel	4-6'	hedge
Kiwis	10'	10'
Nut trees - orchard	35'	35'
Nut trees - forest	20'	20'
Pears, Asian Pears	20'	20'
Raspberries	2'	6-12'
Stone Fruit	15-20'	15-20'
Strawberries	see instructions, p. 27	
Sweet Cherries	25'	25'

Beware the Apple Borer!

In many parts of central and northern New England the roundheaded apple tree borer, *Saperda candida*, is the **number one enemy** of young apple, crabapple and quince trees. If you are growing young apple trees in these locations, you *must* protect your trees from this pest. Farther south and north the borer may not be a pest. If you don't know if they are a problem in your area, check with any grower near you: they'll know. Otherwise, err on the side of caution. This particular borer does not endanger other fruit trees or ornamentals.

Borer beetles lay eggs under the bark near the base of the tree. The developing larvae tunnel through the wood, eventually weakening the tree until it falls over. The trouble sign is small deposits of orange sawdust, called frass, at the base of the tree. Check lower trunks for frass and tunneling in late May, and again in September. Left unchecked, borers usually mean death for young trees.

Here are five strategies for controlling borers:

• **Paint the trunks** Painting is likely the best deterrent, especially if you have more than a few trees to monitor for borers. John has tried a number of recipes and this is his favorite. It's easy and requires no hard-to-find ingredients:

Mix white interior latex paint with joint compound. (The stuff you smear on sheet rock joints and nail holes—you can buy a small tub at any hardware store. Some exterior paint formulations contain ingredients that can harm the tree's phloem.) The consistency should be thick but still quite easy to paint, not glob on. Repaint as needed. This mix will help deter borers and also make detection of infestations easier. Once you locate a borer hole, you'll have to cut or blast it out (see below). Look for the orange frass!

We are experimenting with a borer-prevention formula using more benign ingredients. It doesn't last or adhere as well as the paint-joint compound mixture, but it appears to work fairly well.

2 qt quick lime
4 gal milk
1 gal boiled linseed oil

Mix well. Thicken as needed with clay or Surround (available in the **Organic Growers Supply** section of the Fedco Seeds catalog). Apply with a paint brush. Reapply as needed.

• **Cut It Out** Once you've identified a hole or soft spot in the trunk, insert a wire and dig around until you locate and kill the larva. Cut away soft spongy pockets with a knife. Even serious carving is less harmful to the tree than leaving the larvae alive inside.

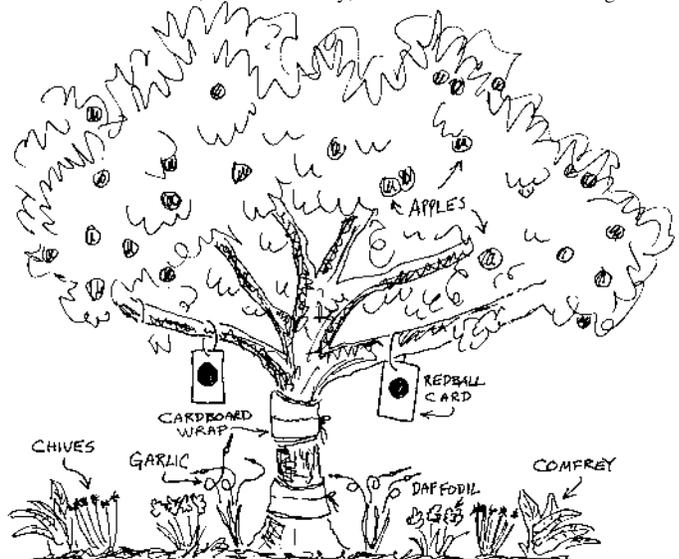
• **Blasted Borers** When you discover a soft spot or hole in the tree, get yourself a can of compressed air (for cleaning computers). Put the long skinny tube nozzle up to the hole and give it a blast. Should do the trick.

• **The Polyculture Deterrent** Borer beetles thrive in shady moist warm environments. Keep grass back at least 6" from the tree base. Trials in our "functional" orchard suggest that a mixed polyculture environment may disguise the apple trees and fool the borers. We plant woody and herbaceous perennials around the trees, keeping them back 12" or so. Borers are lazy opportunists. If there are a lot of apple trees within easy reach, they will attack. Otherwise, you may never see them. The polyculture orchard may present too much work for them.

• **Neem Oil** Recent trials indicate neem oil is effective against borers. You can make a 2% neem solution to spray on trunks, especially the first 8-12" above soil line, once a month from June to September. In a bucket, blend 1/3 cup neem oil with 2 tsp biodegradable dish soap until the color lightens, then mix in a gallon of warm water.

If this seems too involved for your situation, you could also just paint undiluted neem oil, warmed to liquify, onto young tree trunks.

With either method, treat trunks only; neem oil could burn the foliage.





Scab in the apple orchard

Apple scab (*Venturia unaequalis*) is the most challenging disease for the New England apple grower. Scab is a fungus, spread by spores that overwinter in fallen fruit and leaf litter, rising up in rainy spring weather to cause grief all over again. It appears as small rough black patches on the fruit or foliage. A bit of scab is not a bad thing. It won't hurt you or your tree or fruit. Some growers actually believe that a small amount of scab triggers a beneficial self-protection response in the apple. But a lot of scab can destroy the fruit and even kill the tree. Severity of infection can vary depending on the year, the site, and the variety.

With organic or conventional fungicides as a last resort, what can you do to avoid or minimize scab damage in your trees?

Avoid susceptible varieties. Although nearly all apples are susceptible to some extent, certain varieties are especially vulnerable to scab. In particular, McIntosh and its relatives are scab magnets. These include Cortland, Fameuse and Macoun. If you grow these apples, you'll probably struggle with scab in your orchard. If you can avoid these varieties, you may be able to keep scab to a tolerable level without spraying fungicides. Most heirlooms are susceptible but should be quite tolerant as long as highly susceptible varieties are kept away.

In 1945, Purdue, Rutgers and the University of Illinois began a collaboration to develop scab-immune varieties. Many of these have PRI in their names. (Prima, Priscilla, Williams Pride, etc.) They bred the varieties using *Malus floribunda* as a parent. It contains a gene that imparts scab immunity to the fruit. By crossing and re-crossing, they were able to isolate and include this gene in the final introduction. We've offered some of these varieties, including GoldRush from the PRI program, and Liberty from the associated New York breeding program. If you like the fruit from these varieties, growing them can be a good strategy for avoiding scab.

Thin the fruit. In late spring or early summer, we thin all our tree fruit, remove enough fruitlets that the mature fruits won't touch. You want air circulation. Insects also like those places where fruits rub against each other.

Clean up drops and fallen leaves. Scab lives in the drops (fallen fruit), as do insects. Eat the drops, make them into cider, feed them to your livestock or compost them. Some farmers let livestock in the orchard to eat the drops. Also rake up leaves in the fall. Burn, compost or mow them. By practicing good hygiene in the orchard, some growers have been able to grow good McIntosh organically.

Do plants communicate with us? Do they have souls, as some people claim? I don't know. Perhaps we'll never know. But I have my suspicions.

—Dr. James A. Duke, *The Green Pharmacy Herbal Handbook*

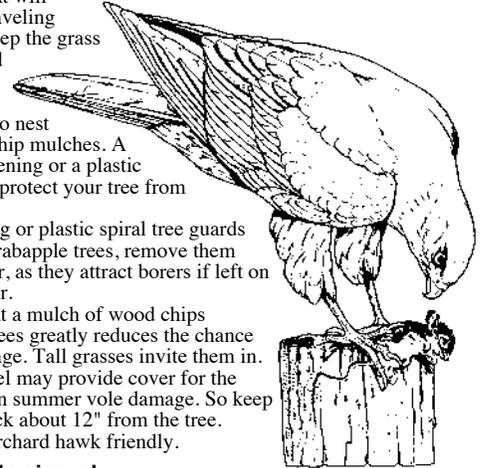
Protecting Trees from Mice and Voles

Fruit trees and ornamentals are sometimes girdled by mice or voles eating the bark. Girdling will usually kill the tree or shrub. The danger is greatest in winter. Stomp around the trunks after each fresh snowfall to create a packed-ice barrier that will prevent mice from traveling beneath the snow. Keep the grass mowed in the fall and remove large mulch piles from near the trunks. Rodents like to nest in hay more than in chip mulches. A wrap of window screening or a plastic spiral tree guard will protect your tree from being girdled.

If you use screening or plastic spiral tree guards on apple, quince or crabapple trees, remove them from April to October, as they attract borers if left on the tree in the summer.

Our trials show that a mulch of wood chips surrounding young trees greatly reduces the chance of summer vole damage. Tall grasses invite them in. The polyculture model may provide cover for the voles and can result in summer vole damage. So keep the tall perennials back about 12" from the tree.

Also, make your orchard hawk friendly.



Voles Don't Like Narcissus!

For many years we've been planting daffodils around the base of some of our apple trees. No particular reason; it just looks great. Come to find out that you can beautify your orchard and deter voles at the same time. Plant daffodils in a circle a foot or two away from the base. The tunneling voles don't like the bulbs and will veer away.

We don't have the super-destructive pine voles in our orchard—whether or not the bulbs would deter them, we don't know.

Oh Dear, Deer!

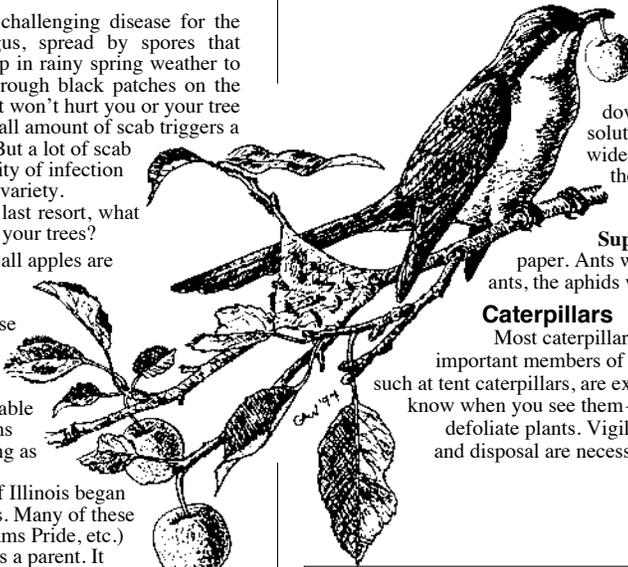
The best deer protection is a collie in the yard. If you don't have a dog or if your orchard is too far from the house, an 8' sheep fence will work. Some people have good luck with electric fences. Small protective fence enclosures can be made by circling your tree with a cylinder of chicken wire or other fencing.

Aphids and ants

Aphids can do a lot of damage to apple trees and they make the young leaves look gross. Whenever you see aphids you will see ants climbing up and down the tree feeding them. Here's an easy solution. Wrap a piece of stiff paper about 6" wide around the trunk about a foot or two off the ground. Tape this "sleeve" to itself but not to the tree. Smear Tanglefoot (available in the **Organic Growers Supply** section of our Seeds catalog) on the paper. Ants will not cross the barrier and, without the ants, the aphids will die. In a day or two no more aphids.

Caterpillars

Most caterpillars will not damage healthy plants and are important members of the environment. However, a few kinds, such as tent caterpillars, are extremely destructive to fruit trees. You'll know when you see them—they hatch in large crowds and rapidly defoliate plants. Vigilant daily observation, manual collection and disposal are necessary from mid-summer to fall.



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- Enjoy benefits such as a 1% discount on all your orders.
- Happy with our products, prices and catalogs? Help us to endure and thrive for many years to come! Keep that humor, those bad puns and occasional rants coming!
- Support our values? Help us fulfill our mission to repopulate the world with plants!

To learn more about membership, please visit our website, or contact us: questions@fedcoseeds.com or call (207) 426-9900.

