



Jerry Baker
America's Master Gardener®

THE NEW
GARDEN
LINE SERIES
VOL. III














TREES

AMAZING TIPS, TRICKS & TONICS!

- ▼ Stimulate Your Trees by Spanking Them!
- ▼ Safe & Effective Insect Controls
- ▼ Step-by-Step Planting, Pruning, & Preventative Care Guide

Plus More!
**TREMENDOUS
TREE TIPS!**

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Introduction

Have you ever spent a sultry summer afternoon sipping lemonade in the shade of a giant tree? Or maybe you've sought relief from life's tensions by walking among the trees in a city park. If you've done either of these things, then you know what an important part trees play in our lives and our landscape.

It's more likely, though, that you take trees for granted—unless you've just moved into a new house in the middle of a bare lot. If you're smart, you'll give a lot of thought to the trees you choose; you won't just dash down to the nearest discount garden center and grab the first (and cheapest) tree you see.

Trees are long-term investments, and if you choose and plant them wisely, they'll add to the beauty and value of your home. They can complement the lines of your house, provide a background for flower beds, shade your outdoor living area, and screen out unpleasant views. And many trees are attractive enough to stand alone as specimen plants.

If you have a question about trees or tree care, why don't you call me **"On the Garden Line"** Saturday mornings from 8:00 a.m. - 10:00 a.m. EST, on your local Mutual Broadcasting Station. The toll-free number is **1-800-634-3881**.

Also, for more comprehensive information, please refer to one of my other full-size books:

Plants Are Still Like People
Jerry Baker's Flowering Garden
The Impatient Gardener

or pick up a copy of **America's Gardening Newsletter, "On The Garden Line®,"** which is also jam-packed with timely tips, tricks and tonics on lawn, garden and house plant care.



COMPATIBILITY



The first thing you need to think about when shopping for trees is whether they will be happy at your home. Will they be able to adapt to the climate and soil conditions you have to offer? The nurseries in your area probably don't carry plants that won't adapt to the climate, but if you're ordering from a mail-order nursery, you'll have to do some detective work to find out if the beauties you've decided on will thrive in your part of the country.

Your second consideration should be the trees' susceptibility to diseases and insect infestation. Elms, for example, are notoriously susceptible to Dutch Elm disease. Avoid all trees that you might have to coddle through a series of illnesses.

Next, find out if the trees you're considering have any bad habits. Some trees, like weeping willows, are very messy. They litter up their homes with twigs, seed pods or fruit. The silver maple, though very popular, has a careless habit of dropping its brittle twigs all over a wide area. Stay away from these litterbugs, unless you can plant them in an out-of-the-way area or don't mind doing a lot of clean up.

A GROWING PROBLEM

Last, but certainly not least, is the question of size. Just how big are these little whips that you're buying going to get? Try to choose trees that will be in proportion to your house and lot when they reach maturity.

Size also dictates the spacing of trees. You need to know close you can plant a tree to your house, your driveway, the street or other trees. Find out how far the branches will spread. Don't just guess, or you may find yourself being crowded out of your own yard in a few years. Also, remember to keep trees as far away from your flower beds as possible to prevent the roots from creeping in and robbing your flowers of moisture and nutrients.

COMPATIBILITY



RULES TO PLAN BY

1. Measure your property (or photocopy your abstract plot layout that already has the home, walks and driveway laid out on it).
2. Take soil samples from every area that you intend to plant trees, shrubs, or evergreens in. In other words, dig holes at least 30" deep to see what treasures your builder buried there.
3. Visit your local garden center and buy an inexpensive book on trees, shrubs and evergreens recommended for your area.
4. When you sit down to draw in your selections on your plan, make sure you understand how big and how fast your trees will grow.
5. Then take your time, and do it right!

Tree Type

Suggested Spacing Distances

Screening-type trees	6' to 7'
Minor shade and small flowering trees	18' to 20'
Columnar and medium-sized trees	28' to 32'
Major shade trees	42' to 62'

COMMON Cents

cc

Now that you know what trees you want and where you're going to plant them, you probably can't wait to get started. And I don't blame you. Landscaping your own yard is exciting, but too much excitement and not enough common sense can cost you a lot of money and cause a lot of disappointment.

You can buy trees at a local nursery or from a mail-order nursery. The only disadvantage of buying from a mail-order nursery is that you will be limited to fairly small trees. Generally, 5' to 6' tall trees are the largest that can conveniently be shipped by mail. However, if you want to buy a large number of small trees, perhaps for a windbreak, then a mail-order nursery is your best bet. The smaller trees will probably be considerably cheaper than the larger ones that your local nursery carries.

Remember, however, that all cheap trees aren't bargains. You've probably opened your mailbox and found many bright-colored catalogs that show trees with blossoms the size of dinner plates. The copy promises that they'll shoot up so fast you'll think that they're jet propelled. Best of all, they're unbelievably cheap! Take it from me, the low price is all you should believe. If you order some of these "bargains," your mailman will bring you a tiny box of poorly packaged, anemic plants. And if you can coax a few of them into growing, don't expect them to look anything like the beautiful trees in the catalog.



☛ COMMON CENTS

HORSE SENSE

Everyone knows that you pick a good horse by looking at its teeth, and you pick a good watermelon by thumping it. But how do you pick a good tree?

First, you need to know something about the way trees are sold. They come in 3 forms: **bare-rooted, in containers, and balled-and-burlapped.** Bare-root trees are the easiest to ship, but they must be handled with great care to prevent the roots from drying out. Trees in containers can be transplanted along with the soil in which they have been growing, so there's no risk that the roots will dry out. The average container tree is rather small—about 3' or 4' high. If trees grown in standard 1-gallon cans are much larger than this, don't buy them because their roots are badly crowded. Large trees, even full-grown shade trees, are sold balled-and-burlapped. If you buy large, balled-and-burlapped trees, you'll probably have to have the nurseryman plant them for you because even a relatively small ball of soil is very heavy.

When buying balled-and-burlapped trees, feel the ball of soil. If it is soft instead of hard and tightly packed, don't buy that tree. Its roots may be broken, and there are certainly air pockets around them that will cause drying out. Also reject any tree whose trunk is loose in the ball of soil.

Examine the roots of all container trees. They should fill the container. Ask the nurseryman to tip the container and partially remove the root ball. If this is not possible, turn the container on its side and look at the drainage holes. If you can see roots, you can be sure that the root system is well developed.

Also, when buying trees, look for broken branches and injured bark. Both are symptoms of poor handling and may admit disease. Avoid any trees with wilted leaves because this means that they have not been adequately watered. The leaves should be a healthy, bright green color, not yellowish or pale.

WHEN To Plant



The time to plant balled-and-burlapped and container trees is whenever you can get a shovel into the ground. Bare-rooted trees should only be planted when they're dormant.

Even though trees can be planted at other times, I prefer planting them in either spring or fall. Trees planted in spring have several months to get established before winter sets in. Fall is a very pleasant time to plant because the soil is usually soft and moist, which makes digging easier, and the weather is cool and comfortable. The roots will have enough time to make some progress before winter, and this root system will give fall-planted trees a head start over those planted the following spring.

Once you've bought your trees, it's up to you to make them happy in their new home. After all, they're not temporary guests; they're going to be permanent members of your family. What's the first thing a couple does when they have a new baby? They give it a name, of course. They don't want to go on calling their beautiful, bouncing baby "he" or "she" forever. And you don't want to go on calling your trees "its" forever. Give them a name of their own and use it whenever you're scolding or congratulating them on their progress.

DON'T TREAT YOUR SOIL LIKE DIRT

Although you may think of soil as just dirt, your trees don't. The soil is their home, and if they don't feel comfortable, they'll never be happy. So you need to find out if your soil is suitable. If it's not, then you'll have to do something to it.

Most trees do best in a slightly acidic soil, with a pH between 6 and 7. The only way to determine the acidity of your soil is by testing it. You can send a soil sample to your local agricultural extension service for testing, or you can do the testing yourself, with one of the kits available at most garden centers. Be sure to take samples from several locations in your yard and label them because the acidity may vary from place to place.



WHEN TO PLANT

If the results of the soil tests show that the pH is unsuitable for the trees you want to grow, you can raise the pH (making the soil more alkaline) by adding limestone, or lower it (making the soil more acidic) by adding ground sulfur. To effectively change the soil acidity, you'll have to dig the limestone or sulfur into the soil to a depth of 18" or more. Spread the limestone or sulfur over a wide area to accommodate spreading roots. To make sure the pH is staying within a suitable range, test the soil every 3 or 4 years. You may have to add more limestone or sulfur from time to time.

Your soil may not be perfect—or even very good. It may have too much clay or too much sand. Clay soils are heavy and tend to become waterlogged. Trees can literally drown in clay soils. Sandy soils, on the other hand, are often too dry because they drain so quickly. Trees planted in sandy soils may die of thirst. Fortunately, one procedure will remedy both of these problems. Adding liberal amounts of organic matter will lighten clay soils and will improve the water holding capacity of sandy soils. For trees, you will have to work organic material into the soil over a wider area to a depth of at least 18".

If you have severe drainage problems that are caused, for example, by a layer of rock beneath the topsoil, you may have to install an underground drainage system. You can lay drainage pipes yourself, but this is a very difficult task, so you'll probably prefer to have it done by professionals. This will probably be an expensive undertaking, but it will permanently improve the condition of your soil.

Not all drainage problems are this severe. You may find a layer of impermeable, packed soil (called hardpan) at the bottom of the planting hole. To solve this problem, you must break through the hardpan to the looser soil underneath it. Using a post-hole digger, dig a 6" to 8" wide hole through the hardpan and fill the hole with coarse gravel. Water will drain out the hole, and your tree won't have a case of wet feet and a chronic cold all of the time.

PLANTING



The best advice I can give you on planting trees is to dig a \$10.00 hole for a \$5.00 tree. Nothing is worse for a young tree that's trying to get established than having its tender roots shoved into a tight-fitting hole. The situation will get only worse when the tree starts to grow. The roots, which may already be injured, will have a hard time prying their way into the packed, hard soil around the planting hole. Eventually, the tree may just give up and die.

To prevent such a tragedy, when you dig your planting holes, make sure that the tree roots will have plenty of room to grow. As a general rule, the planting hole should be twice the diameter of the rootball and 1-1/2 times as deep as the rootball is tall. Once the hole is dug, spread a layer of peat moss or leafmold in the bottom. Pack the organic material down firmly with your feet. Set the tree in the hole and check to see if it's sitting at the same depth as it was in the nursery. If it's not, adjust the depth of the layer of organic material.

A lot of container-grown trees die because of the clumsy way they are removed from their containers. Do not grasp the trunk of the tree and try to tug the rootball out of the container. If you're going to plant your tree soon after buying it, ask the nurseryman to cut the can and tie it to prevent it from coming apart on the ride home or you can cut the container at planting time with a pair of tin snips. Pull the container apart and carefully lift out the tree, grasping the ball of soil, not the trunk.

SUGGESTED PLANTING HOLE SIZES

Tree Size	Hole Diameter	Hole Depth
6' to 9' high	30"	20"
1" to 1-1/2" in diameter	34"	22"
1-1/2" to 2" in diameter	36"	23"
2" to 2-1/2" in diameter	38"	24"
2-1/2" to 3" in diameter	42"	25"
3" to 4" in diameter	48"	28"
4" to 5" in diameter	54"	30"

✂ PLANTING

GIVE YOUR TREES AN EVEN BREAK

In most cases, the average person doesn't want to do any more work than is absolutely necessary. What that boils down to is digging a hole as small as you can get away with! If that's the case, then the results shouldn't be surprising. 60% all newly planted residential trees die within the first year. Here's how to avoid being part of those statistics:

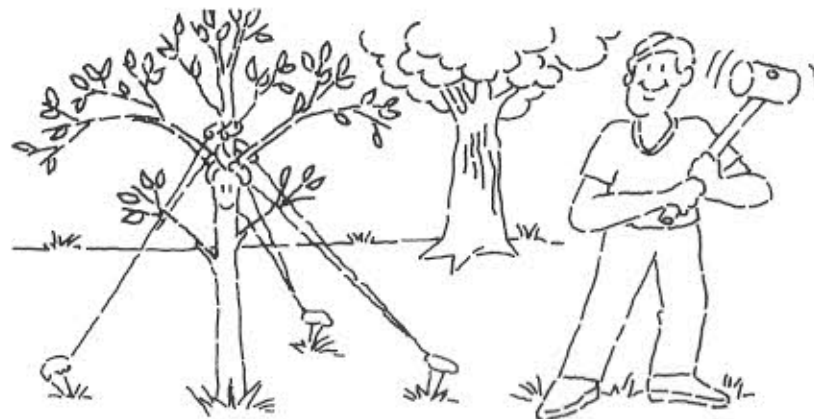
1. Mound plant whenever possible. Mound planting is simply having topsoil brought in and piled in a low hill form, giving you a more natural look.
2. Dig all holes 50% wider than the ball or container, but no more than 6" deeper.
3. Scatter the heads of **10 packages of paper matches and 2 cups of Epsom salts** in the bottom of each hole.
4. Press the soil down firmly when you backfill.
5. Water with a 10 gal. hose-end sprayer half-filled with liquid dish soap and tea water.
6. Wrap the trunks of all newly planted trees with tree wrap.

PROTECT THE TRUNK

Now that you've moved your trees into their new home, you must provide them with protection from the elements until they become firmly established members of your family. Young trees, especially dogwoods, beeches, or maples, have a very delicate complexion—or bark. So it's up to you to keep them from getting sunburned! This doesn't mean you have to go out and apply suntan lotion to the bark every day. Just give your trees a "jacket" to protect them from the sun. In other words, wrap the trunks from the base to the lowest branches with burlap, foil, cheesecloth or tree wrap, which is made of waterproof, corrugated paper. Take 2 firm turns around the base of the tree, then spiral the tape up the trunk, overlapping the layers by about an inch to keep water out. Tie the top and bottom ends of the tape with cotton cord. The wrap should stay on the tree for about 2 years to give the bark time to toughen up.



If you live in a windy area, you may need to stake your trees to keep them standing straight and tall. On opposite sides of the rootball, drive two 6' long stakes about 2' into the ground. Make sure the stakes do not pierce the rootball. Take heavy-gauge wire and thread it through a short piece of old garden hose. Loop the wire around the tree, placing the garden hose around the trunk to keep the bark from being cut or bruised by the wire. Attach the ends of the wire to the stakes. Repeat this process on the opposite stake. I usually remove the stakes in about 2 years—at the same time I remove the tree wrap. By this time, the trees will have planted their feet firmly and will be able to withstand the wind on their own.



2 stakes, however, may not provide enough support for trees larger than 3" in diameter. Instead, drive 3 short stakes into the ground at equal distances around the tree. Thread 3 sturdy wires through pieces of old garden hose. Loop them around the tree trunk just above the lowest branch, using the garden hose to protect the bark as before. Attach the wires to the stakes. For maximum support, the wires should run at 45° angles. These wires should stay in place for 2 years also.

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A SUIT OF ARMOR

Sun and wind aren't the only problems that young trees face. Rabbits and mice can seriously damage, or even kill, young trees by gnawing their tender bark. And then there are young kids with lawn mowers. They may not gnaw the bark off of trees, but they can inflict a lot of damage with a lawn mower in high gear. Tree wrap will protect your trees from lawn mowers and rodents during its first 2 years, but what then? Give your trees a suit of armor.

Cut a length of 2' wide hardware cloth. This should be large enough to form a cylinder that will stand about 2" away from the trunk on all sides. Wrap the hardware cloth around the trees and wire the ends together. If there is a mulch around the tree, push the mesh down into it. If the tree is not mulched and you plan to hand-clip around it, leave the "armor" loose so you can easily raise it.

I have 1 more piece of advice on tree planting. Use only slow-acting, non-burning fertilizers, such as cottonseed meal, bone meal or slow-release chemical fertilizer, around newly planted trees. I prefer bone meal. I usually work about 1/2 cup of bone meal into the soil that I return to the planting hole. From time to time, I also sprinkle a handful of bone meal in the basin around the tree and water it in. Well-rotted manure is also good for working into the planting hole. If you don't mind the looks of it, you can also spread a layer of rotted manure in the basin. Rainwater will leach the nutrients out of the manure and carry them down into the soil.

During your trees' first year, you must make sure that they get enough water. During the growing season, water them once a week unless there's enough rainfall to make this unnecessary. Always take the time to give your trees a long, thirst-quenching drink. Don't just sprinkle the soil surface.

Other than occasional watering, newly planted trees need no other special care. Just talk to them every now and then. Tell them what splendid progress they're making and introduce them to the other plants in your yard. Soon they'll feel right at home.

FEEDING



There are 2 ways to get fertilizer to the roots of a tree—by placing dry fertilizer in holes punched around the tree, or by injecting liquid fertilizer into the soil with a special device. You can also spray liquid fertilizer directly onto the leaves.

FOLIAR FEEDING

Of these 3 methods, the last, called foliar feeding, is the easiest, so I'll explain it first. Foliar feeding produces the fastest and most dramatic results because the leaves have immediate access to the nutrients.

Unfortunately, they are not long lasting. Actually, I don't recommend that you use foliar feeding exclusively because if you do, you'll have to feed your trees several times during every growing season. Instead, use foliar feeding to give your trees an occasional beauty treatment—maybe a week before that barbecue you're planning—or to supplement root feeding.

The best tool for foliar feeding is a hose-end sprayer. Fill the sprayer jar with concentrated liquid fertilizer. When you turn on the water, the fertilizer will be siphoned up into the hose stream and sprayed out in a diluted form. Because the fertilizer will be very diluted, there is no danger of burning the foliage, so you can do your foliar feeding at any time of day. If a tree looks a little gray soon after foliar feeding, don't worry. The leaves are just coated with a film of fertilizer that will wash away in the first rain.

INJECTOR FEEDING

The easiest way to feed your trees' roots is to give them an injection. Maybe your doctor has given you vitamin shots. Well, you can do the same thing for your trees. Since no one makes hypodermic needles large enough for trees, you'll have to use a special instrument called an injector, a root feeder, a root-zone applicator or a needle probe.



FEEDING

Now don't get me wrong—you're not going to inject fertilizer directly into the trees' trunks. Instead, you're going to squirt liquid nutrients into the soil around the roots.

Root feeders are 3' to 4' long with hollow, pointed tubes. At the top of the tube is a cylinder where you insert the concentrated fertilizer cartridges. This is also where the garden hose is attached.

Before you start root feeding, you must determine the trees' feeding zones. To do so, mark a circle 1/3 of the way between the trunk of each tree and the drip line. Now mark another circle the same distance beyond the drip line. The area between the circles is the tree's feeding zone; all fertilizer should be injected in this area.

Now turn on the water and insert the pointed end of the root feeder into the soil. Cover the feeding zone evenly, spacing the holes 2' to 3' apart. The fertilizer will soak into the soil, thus becoming accessible to many feeder roots. The effects of root feeding last longer than the effects of foliar feeding. They do not, however, take place as quickly.

Because the fertilizer is applied in liquid form, it will drain out of the soil long before the growing season ends. To keep your trees from getting hungry, you'll have to repeat this type of root feeding 2 or 3 times during each growing season.

DRILL & FEED

The tried-and-true method of tree feeding involves drilling holes in the soil and filling them with dry fertilizer. This method also involves the most work, but it is still the best method. The dry fertilizer dissolves very slowly, so the results of this method last longer than those of either foliar feeding or injector feeding. Tree roots fed with dry fertilizer won't need another feeding for at least a year. And an afternoon of hard work once a year isn't bad at all.

Always try to do this type of feeding on an early spring day. The weather is perfect for gardening and the soil is usually rather moist, which makes drilling the holes easier and helps keep the fertilizer



from burning the roots. If the soil is dry, I water it thoroughly a few days before I plan to feed my trees. If you wait until feeding day to water, the soil will be too wet to work in.

Now don't just go out and start drilling holes in the ground willy-nilly. Get organized first. Start by weighing your fertilizer. To determine the proper amount to apply, measure the diameter of each of your tree trunks. If the diameter is less than 6", use 1 to 2 pounds of dry fertilizer for each inch of diameter. For example, if the diameter of the trunk is 3", you'll need from 3 to 6 pounds of fertilizer. For trees with a diameter greater than 6", use 2 to 4 pounds of fertilizer per inch of diameter.

After weighing, mix the fertilizer with an equal amount of sand, soil or peat moss. This, too, helps keep the fertilizer from burning the roots.

Next, mark off the root feeding zone of the tree; all feeding holes should be in this area. If you've never root fed a tree, you might want to mark the spots where the holes should be. Plan on making at least 10 holes for every inch of trunk diameter, and space the holes 1-1/2' to 2' apart.

If you don't want the grass in the feeding zone to look as if it has the chicken pox, carefully roll back a small patch of sod with a trowel before making a feeding hole. Now drive your crowbar or soil auger 1-1/2' to 2' into the soil. Place a large funnel into the hole and pour about a cup of the fertilizer mixture into it. Try to avoid spilling fertilizer on the lawn or you'll find yourself plagued with tall patches of bright-green, over-fertilized grass. To prevent the grass in the feeding area from being over-fertilized, place a layer of peat moss, soil, or sand on top of the fertilizer mixture. Finally, fold down the patch of sod you rolled back earlier and step on it to establish good contact between the roots and soil. Repeat this process until you have covered the entire feeding area evenly. When you finish, wish your tree "bon appetit."



FOODS

Now that you know how to feed your trees, you're probably wondering what sort of food they need and like. Take it from me—their favorite dishes are nitrogen, phosphorus, and potassium. You can serve these 3 basic foods a lot of different ways individually or mixed together in a fertilizer casserole, otherwise known as a complete fertilizer.

Complete chemical fertilizers available at any garden center. These fertilizers are perfectly safe to use on trees if 50% or more of the nitrogen content is in slow-release form.



Have you ever wondered what those mysterious numbers on every bag of fertilizer mean? Well, they're not a secret code understood only by an elite circle of fertilizer manufacturers and expert gardeners. They simply state the chemical analysis of the fertilizer. A bag of 4-16-4 fertilizer, for example, contains 4% nitrogen, 16% phosphorus, and 4% potassium. (The sum of the numbers is 24; the remaining 76% of the fertilizer consists of an inactive carrying agent.) A bag of 8-32-8 formula contains twice the percentage of active elements as the 4-16-4, so you would only have to use half as much.



What's the best fertilizer for trees? It depends on the tree, but in general, I like to give my trees a hefty dose of slow-release nitrogen to keep the foliage dense, dark-green and healthy.

So you see, planning a menu for your trees is not difficult. As a matter of fact, my wife says it's a heck of a lot easier than planning the week's menu for our family.

WHEN TO FEED

There seems to be a lot of confusion about when is the proper time to feed a tree. Some people feed their trees in either early spring or late fall—or sometimes both. I strongly disagree with this. In my opinion, early spring is the only time to feed a tree! In the first place, trees wake up ravenously hungry after their long winter naps. Second, if you fertilize a tree in early spring, the nutrients will be available to it throughout most of the growing season. By early fall, the tree will have used up most of the nutrients from its spring meal. But this does not mean that you should fertilize again! At this point, another dose of nitrogen would encourage the tree to keep on growing vigorously, regardless of the season. The new growth wouldn't have a chance to fully mature before winter set in. Consequently, it would be very susceptible to damage caused by wind, cold and ice.

If you are foliar feeding your trees, or root feeding them with an injector, you will have to make several applications during the growing season. Start your fertilizing program early in spring, so you will have time to feed the trees several times before midsummer. Then, about the middle of July, stop feeding altogether. I know this sounds cruel, but I have your trees' best interests at heart.





WATERING

Unless you live in a very dry area, frequent watering of established trees is probably unnecessary. The trees' feeder roots extend deep into the ground and over a wide area, so they have access to underground soil moisture even when the soil surface looks quite dry. During prolonged periods of drought, however, the amount of underground soil moisture is greatly reduced, so you should water your trees.

IF A JOB'S WORTH DOING, IT'S WORTH DOING WELL

This bit of advice is especially applicable to watering trees. Whenever you water a tree, do a thorough job or don't do it at all. The water must be allowed to soak deep into the ground so it will be accessible to the feeder roots. If you haphazardly sprinkle for a few minutes, the water will only soak down a few inches. Repeated shallow watering will cause the trees to develop shallow root systems, which will do a poor job of supplying them with moisture and nutrients.

On the other hand, over-watering can eventually cause tree roots to drown and rot. Unfortunately, gardeners with the best of intentions often accidentally over-water their trees, especially with an automatic sprinkler system. If you water your lawn regularly, check the drainage around your trees. If they're standing with their feet in puddles, you'd better cut back on your watering.

Several different types of hoses are suitable for watering trees. Canvas soaker hoses or perforated plastic hoses are the best types for watering trees. Both provide a slow, steady flow of water that will soak deep into the soil without disturbing the surface. You can even use an ordinary garden hose, if you keep the water pressure low and cover the end of the base with an old sock to break the force of the water.

If possible, circle the tree with a soaker hose, placing it within the root feeding area. If you're using a hose with holes on only one side, place that side next to the ground so that the water can soak directly into the soil. Turn the water on slowly; all you want is a slow trickle. Don't increase the flow of water until the soil is thoroughly soaked to a depth of about 2'.



PRUNING

From time to time, you may have to perform surgery on your trees. If a tree becomes injured or diseased, you will have to do some corrective surgery to save the tree's health—and perhaps its life. At other times, you may have to perform purely cosmetic surgery to improve the appearance of the tree or to keep it from intruding in areas where it does not belong. It's a good idea, for example, to remove any branches that are too low to comfortably walk under. Maybe there's a low-branched tree standing between your living room window and a spectacular view; a little judicious pruning might allow you to enjoy the view without sacrificing the tree.

Performing surgery is a serious business. No reputable surgeon would perform an operation unless it was absolutely necessary. Likewise, you should not do any unnecessary pruning. Once you cut off a limb, there's nothing you can do to make it grow back. Of course, all injured or diseased branches should be removed immediately to prevent the decay or disease from spreading throughout the tree. If you're pruning to improve the beauty of the tree, make sure the alterations you're planning will be improvements. Don't randomly hack out branches and then stand back to survey the overall effect. Instead, study the tree before you prune it. Try to visualize the way the tree will look after the pruning is done. Look at the structure of the tree and try to pick out its best features. Could its profile be improved by pruning? Or does it have an interesting branch pattern that could be made more dramatic by pruning out some of the smaller branches?

TIMING

Trees can be pruned any time during the year. I always schedule pruning for early spring so my trees will have an entire growing season to heal their wounds. Some trees, however, should not be pruned in early spring. Flowering trees that formed their flower buds during the previous growing season should not be pruned in early

✂ PRUNING

spring because this would greatly reduce the number of blossoms produced that year. Instead, postpone pruning until after the tree has flowered. Before pruning any flowering tree, find out when it sets its blossoms. If you time your pruning properly, you won't miss a single season of bloom.

Beeches, birches, maples, walnuts and yellowwoods should not be pruned in spring. If you do, they'll bleed all over your pruning tools and your lawn. This bleeding is not really dangerous to the tree, but is messy and unattractive. It's best to prune these trees in late summer or early fall when the sap isn't flowing so freely.

THE TOOLS OF THE TRADE

Amateur tree surgeons often make the mistake of trying to make do with the tools they already have instead of purchasing tools made especially for pruning. Do not try to prune trees with your hedge clippers. And don't use an ordinary carpenter's saw to cut off large branches. Its fine teeth will stick in live wood. The coarser teeth of a pruning saw are designed to cut cleanly through live wood.

In addition to a pruning saw (which you'll use to remove large limbs), you'll need a pair of long-handled lopping shears for smaller branches. A pruning knife is ideal for cleaning up the rough edges of pruning cuts, but any sharp knife will do. Buy a can of tree paint for treating all wounds larger than 1" in diameter. Under any circumstances, do not use ordinary house paint to seal wounds; it may kill your trees.

How do you prune those limbs high above your head? You could climb the tree, but there's an easier and safer way. You can lop off small branches less than 1" in diameter with a handy tool called a pole pruner. The pole pruner is obviously mounted on top of a long pole, and its blades can be opened or closed by pulling or releasing a cord that extends down the pole. To remove branches larger than 1" in diameter, you'll need a pole-mounted pruning saw. These tools can be used to prune branches 12' to 18' above the ground.

An amateur should not try to do any pruning at this height because it could be dangerous. Let your fingers do the walking - professional tree surgeons are equipped to handle this job.

I have nothing against chain saws—they make quick work of chopping firewood and cutting down trees. But they should never be used to prune trees! Holding a chain saw high enough to reach even the lowest branches on a tree is very dangerous. Stick to hand pruning tools and save your chain saw for playing lumberjack.

You don't have to buy all your pruning tools at once. Just buy them as you need them. Or if you have a neighbor who does his



own pruning, you could share tools with him. Find out what tools he's lacking and limit your purchases to those. Before long, you'll have a complete set between you.

If you buy good-quality pruning tools and care for them properly, they'll last for many years. Before you put your tools away, always dry and oil them thoroughly to prevent rust and to keep them sharp. If your tools become dull, have them sharpened regularly. Dull saws and shears make ragged cuts and can cause bruises on both you and your trees.

Diseases can be spread from one tree to another by dirty pruning tools. Immediately after pruning a tree that may be diseased, wipe off the blades of your tools with denatured ethyl alcohol. It's also a good idea to disinfect all borrowed or rented tools with alcohol before using them on your own trees. You never know where they've been.



INSECT Controls

The best way to keep from getting sick is to stay healthy. That may sound like a useless piece of advice, but think about it for a minute. If you eat the right foods, get enough rest and generally take care of yourself, you'll feel good and probably won't be spending a lot of time in a doctor's office. Of course, if you do occasionally get sick, you should do something about it as soon as possible.

Well, the best way to keep your trees from getting sick (from insects and disease) is to keep them healthy too. If a problem arises, do something about it before it becomes serious. Proper pruning and adequate feeding and watering all contribute to trees' resistance to disease. So does keeping the area around them clean and free of rubble that may harbor insects and diseases.

BOX ELDER BUGS

These narrow, 1/2"-long insects are brownish black with 3 length-wise red stripes on their thorax. Their wings are red-veined. They feed on the flowers, foliage, fruits and twigs of box elders, ashes and other trees. These obnoxious, ugly bugs will also move right into your home. To control box elder bugs, spray with Diazinon, Dursban, or Malathion.

ELM LEAF BEETLES

Elm leaf beetles are about 1/4" long and light yellow or brownish green in color. They have black spots on their head and thorax, and a black or slate-colored stripe along the outer margins of the wing covers. As their name suggests, these insects feed on the foliage of elm trees. Their presence is noted by skeletonized leaves or leaves riddled with large holes. To control these pests, spray immediately with Sevin, Diazinon, or Dursban. Treating the trunk is also helpful.



BORERS

Borers are difficult to detect because they feed inside the twigs, branches, trunks and roots of many trees. If you look closely at a borer-infested tree, you will probably notice small holes with sawdust around them. Newly planted and sickly trees are particularly vulnerable to borers, and a tree riddled with borers' holes has little chance of surviving. Dogwood and pecan trees are both particularly susceptible to attack from borers.

Wrapping the trunks of newly planted trees with tree wrap will keep borers from laying eggs on the bark. In mid-spring, spray established trees 4 times with Methoxychlor at weekly intervals. If a tree is already badly infested with borers, insert wires into their holes to kill them, or inject a pest killer containing Lindane.

SCALE INSECTS

Male scales are harmless, but females can kill a whole tree by sucking the sap with their long, needlelike feeding tubes. These insects vary in size from 1/8" to 1/2". The females are wingless and after crawling around for a time, they insert their beaks into a twig or branch and stay there for life. Some scales have soft bodies, others have a waxy shell and still others have hard, armored bodies. Some scales also secrete honeydew that attracts sooty-mold fungus.

Spray scale-infested trees with dormant oil in early spring, which smothers both the female scales and their eggs. Trees to which oil is harmful (such as Japanese and sugar maples) should be sprayed with Malathion when the newly hatched scales are in the crawling stage in early summer. Spray 2 more times at 2 week intervals.

APHIDS

Aphids, or plant lice, are seldom larger than 1/8" long. They suck the juices out of leaves, stems and buds, and are particularly fond of succulent new growth. They often crowd onto new, growing twigs and cause a malformation of the foliage. Aphids themselves don't really harm trees, but they spread disease and secrete honeydew that attracts sooty-mold fungus.



INSECT CONTROLS

Unless the infestation is severe, just blast the aphids off the trees with a garden hose or release a handful of ladybugs at the base of the tree. If more severe measures are necessary, spray with Pyrethrum or Malathion. Before the trees leaf out the following spring, spray with dormant oil to prevent the aphids from returning.

LEAF MINERS

There are many types of leaf miners; all feed between the 2 leaf surfaces and all seem to have a favorite host. Birch trees are plagued by the birch leaf miner, the larva of a black sawfly. The miners make large brown blisters and blotches on the leaves, giving the whole tree a blighted appearance. Other susceptible trees are black locusts, elms, hawthorns, lindens, oaks and poplars.

As soon as the leaves begin to unfold in spring, spray with Diazinon, Dimethoate, Carbaryl, or Malathion. Spray twice again at 10-day intervals. About 5 weeks after the last spraying, repeat the whole treatment, again spraying 3 times at 10-day intervals.

CATERPILLARS

Caterpillars are the worm-like larvae of moths and butterflies. They may be smooth or fuzzy, and come in many different sizes and colors. All caterpillars love to dine on foliage, flowers and sometimes fruit. Cankerworms, also known as inchworms, hatch in spring and can deface or defoliate a tree very rapidly. Leaf rollers and tent caterpillars are even more destructive.

Except on Japanese maples, sugar maples and similar trees, dormant oil spray is the best remedy for a caterpillar invasion. Where dormant oil can't be used, spray in spring and midsummer with Carbaryl, Methoxychlor, Sevin or Bacillus thuringiensis (bt).

CLEANLINESS IS NEXT TO GODLINESS

In most cases, that's who it's left up to. A tree gets dirty, just like humans and pets. Dirt breeds disease and weakens a person or plant to the point where they can't fight off insect invasions. The solution is simple - wash your trees once in a while.



BATH SCHEDULE

1. In early spring (before the buds swell up in the north), add **2 cups of liquid dish soap and 2 cups of antiseptic mouthwash** to your 20 gallon hose-end sprayer and spray all of your trees.
2. In the north, dormant spray after the first bath, but before the buds swell up. In the rest of the country, use Malathion and 2 tablespoons of plain old-fashioned mustard (M&M) per 10 gallons of water. Also, add 1/4 cup liquid dish soap to this mixture.
3. In late May, folks in the north can spray with the M & M mixture.
4. In early May and again in September, spray the soil beneath all of your trees with Dursban at the recommended rate.
5. In mid-May, spray foliage of small trees with liquid Sevin at the recommended rate.
6. On June 1st, add **1 can of beer and 2 cups of liquid dish soap** to your 20 gallon hose-end sprayer, and spray at least 5 gallons of this mixture out at the weep line of each tree.
7. All trees must be fed in early spring. Since most of you are too lazy to drill and feed, you can use tree spikes.
8. If you have had or are having problems with insects or disease, spray the foliage with an all-purpose fruit tree spray every 14 days. I know it may not be a fruit tree, but just do it anyway.

DORMANT SPRAYING, OR "NIPPING TROUBLE IN THE BUD"

Many insects brood safely tucked away over the winter as an egg mass in a crevice in a tree, and then hatch in spring with an appetite that would put a bear out of hibernation to shame. Most of you are unaware of this. As a result, you are sadly disappointed in the performance of your fruit, nut, flowering and shade trees after you have diligently followed the prescribed feeding, watering, pruning, and in-season spray and maintenance programs. Your insect and disease problems were safely and securely in place long before you even finished reading the early seed catalogs!

What can you do to prevent this from happening? Dormant spray in late fall and early spring.



INSECT CONTROLS

Dormant spray can be purchased as 2 separate chemicals (mix your own) or in a pre-mix form (labeled as Dormant Spray). It is applied with any 10 or 20 gallon hose-end sprayer. If you're going to mix the 2 chemicals yourself, you will also need lime sulphur solution and dormant oil (also known as Volk oil). I prefer the pre-mixed variety because it has a highly refined mineral oil and does not damage the new growth as easily as the Volk oil.

Timing and method of application will determine the quality of your results and quantity of your harvest.

FALL APPLICATION

Dormant spray in late fall as soon as the leaves of your fruit, nut, and other trees have all dropped. Dormant spraying is also a must for all leaf shrubs and hedges, grapes, and berry bushes. On a comfortable fall day, between 11 a.m. and 2 p.m., when there is no threat of rain or frost for at least 24 hours, add **1 cup liquid dish soap, 1 cup chewing tobacco juice* and 1 cup antiseptic mouthwash** to your 20 gallon hose-end sprayer, filling the balance of the sprayer jar with warm water.

Now, spray all plants that you intend to dormant spray. Then, within the next week, apply the dormant spray over top of the soap solution.

In early spring, before the buds swell up and open, you should repeat each of the fall steps, on the same kind of day. Dormant spray is applied to all trees and shrubs that drop their leaves in the fall. The results will be the healthiest, happiest, most abundant trees and shrubs you have ever seen.

*To make chewing tobacco juice, place 3 fingers worth of tobacco in an old nylon stocking, place the stocking in a gallon of real hot water, and let steep until it's dark brown.

SHADE Trees



Shade trees give us so much and ask for so little in return. They shade you when you are tired, cool you when you are hot, and the soft rustle of their leaves can calm you when you're uptight. So why not plant a tree as a living monument?

WAKE UP YOUR SHADE TREES IN SPRING

Year in and year out, your poor-old-reliable, never-complaining shade trees give you and your family the comfort, beauty and insured property value of their company. Then, one unexpected day, you look up to see the leaves withering and dropping. Or the trunk is bleeding to death, a limb falls on the roof from hidden insect damage, and you get mad at the tree. It should be the other way around! In most instances, if your trees could walk and talk, you would have probably received a severe tongue lashing years ago, and the trees in your yard would probably have gotten together and taken a walk as well.

Spring is the best time to make friends with any tree, and what better way to make friends than to give them a bath. No, you don't have to "get nekked" as they say in the country!

As soon as you can get out in your yard in early spring, bathe all of your trees, both with and without leaves, with the following tonic mixed in your 20 gallon hose-end sprayer.

1 cup liquid dish soap
1 cup chewing tobacco juice
1 cup antiseptic mouthwash
1 tbsp. liquid Sevin
fill the balance of the sprayer jar with warm water

Spray this tonic on any spring day after 5 p.m. when the temperature will stay above freezing for at least 24 hours. Thoroughly spray, to the point of run off, under the foliage, in all cracks and crannies, on trunks, limbs, and where branches join the tree.

SHADE TREES

All trees that lose their leaves for winter should be dormant sprayed a week after the soapy solution is applied. Use a dormant spray that contains a mineral oil base, combined with a lime sulphur solution spray when the temperature will stay above freezing for at least 24 hours.

In the warmer climates you can, and should, begin a feeding program in mid-to-late winter, when new growth begins. In the colder areas, wait for signs of new growth.

As you know by now, tree feeding should be done the old fashioned way, by drilling holes at the weep line 18" apart, and then in a circle 18" out beyond that. Fill the 8" to 10" deep holes with 50% garden food and 50% sharp sand. Or simply drive tree spikes into the ground with a hammer, using the same figures as above.

Now apply **Epsom salts** (to induce fast root growth) at a rate of 1 pound per mature tree. Apply at the weep line using your hand-held whirley spreader set on a no. 2 setting.

Next, fill your 20 gallon hose-end sprayer with this tonic, and apply under each tree, from the trunk out beyond the weep line. 5 gallons of this tonic should make almost any tree happy and healthy, with foliage growing crazier than the dickens.

Last, but by no means least, give your tree a spanking on the trunk with a rolled up newspaper to get it growing. This is called "beating with a bearing switch"—try it just once, you will be amazed at the results!



- 1 can beer
- 1 cup liquid dish soap
- 2 oz. hydrogen peroxide
- 2 oz. liquid fish fertilizer
- 2 oz. whiskey
- fill the balance of the sprayer jar with warm water.

FRUIT & Nut Trees

Every garden should have at least 1 fruit tree in it, if for no other reason than to experience the joy of biting into a shiny red, delicious apple, and knowing that Mother Nature worked with the gardener, against all odds, to produce this object of man's heritage. Remember, all gardening began in an orchard. So you see, fruit trees mean a great deal to each of us, and should be included in any master plan of gardening.

BUYER BEWARE

When a home gardener decides to buy a fruit tree or 2, the first thing he does is shop around for the lowest price, which is his first mistake. The difference between the top-grade tree and the bargain basement variety is usually a few cents, but their vigor and quality are miles apart. When you buy a fruit tree, buy it from a nurseryman who knows what he is talking about. Remember, you get what you pay for, and a fruit tree that costs you a few cents more in the beginning doesn't have to produce too much more to pay for the difference. Many gardeners purchase new fruit and nut trees from catalogues. This is okay if you stick with the old-line, reputable nurseries.

NUT TREE ESSENTIALS

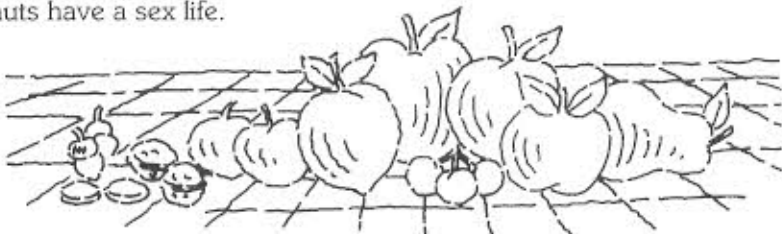
Nut trees must have well-drained soil to survive, and must have plenty of room to grow. Plant chestnuts 30' apart and all others 40' to 50' apart for best results. Plant nut trees the same as fruit trees or shade and flowering trees, except in the case of tap-rooted trees such as walnuts. With such trees, dig a U- or V-shaped hole and fill in the soil carefully all the way up over the top and side roots. Stake nut trees securely so that they won't whip about in the wind. Keep them well-watered, especially during dry periods. Nut and fruit





FRUIT & NUT TREES

trees should be protected from rodent damage. You should also protect these trees from sun scald the first winter by wrapping them with tree-wrap. Nut trees are usually very slow to leaf out after they are planted, so be patient. Most nut trees are not self-fertile, so be sure to plant 2 trees for proper pollination. Believe it or not, even nuts have a sex life.



POLLINATION

A few varieties of fruit and nut trees either will not bear at all, or will not bear consistently unless they are pollinated with another variety. It is best to purchase 2 or more varieties of apricot, sweet cherry, Chinese chestnut and English walnut to insure fruiting. All apples, peaches, pears and plums are "self-fertile", and will bear fruit without cross-pollination. It is always advisable to plant more than one variety of the same family of fruit if possible.

Insect control is not difficult if you will just use a little common sense. First, if your trees are well-fed, pruned properly, and damaged wood is removed or repaired immediately, odds are that the insects will pass you by.

Next, dormant spray in the late fall and early spring followed with a soap-and-water shampoo bath on a monthly basis. If chemical controls are necessary, use an all-purpose liquid fruit tree and vegetable spray than contains Malathion, Methoxychlor, Sevin, and Captan as directed.

So give your family and your garden a treat and add fruit trees to your green scene. With a little work and luck, you won't regret that you did.

FALL Care



Follow these steps in fall and you will have happier, healthier trees next year:

SOIL Put your golf shoes on and walk around your trees in early October to open up the root mass in the grass. Wash down the trunks and lower limbs with warm soapy water (**1 cup liquid dish soap** per 20 gallons of water), and spray the area underneath your trees with Dursban at the recommended rate to reduce the bug population next spring.

DORMANT SPRAY Don't forget to dormant spray. Wash the trees down with the warm soapy water solution first, then dormant spray. Do this after all of the leaves have fallen, but before a freeze sets in, to help control insects and diseases.

TREE WRAP Wrap the smaller tree trunks (up to 6" in diameter) with tree wrap to protect them from winter back split. On larger trees, tape a neatly cut strip of roofing paper the length of the trunk on the southwest side with nylon tape. Spray all young trees with CloudCover® in mid-October and early November to keep them from drying out over the winter.

FEEDING Before November 15th, apply a mixture of **5 pounds bone meal and 1 pound Epsom salts** with your hand-held broadcast spreader (on the #2 setting) in lieu of a regular feeding.

PRUNING Prune shade and fruit trees when dormant, in January, February and March. Be sure to sterilize all wounds and cuts with a mixture of **2 tbsp. ammonia, 2 tbsp. liquid dish soap, and 2 tbsp. antiseptic mouthwash** in a quart of warm water. Seal all wounds with pruning paint. Hard maple, birch and walnut trees can be pruned during the growing season.

VARMINTS Tree wrap, chicken wire, and rabbit repellents are all precautions you can take to prevent rabbits from girding your trees. If deer are a problem, use any repellent that contains bone tar oil.



CONVERSION Table

MULTIPLY

TO OBTAIN

Feet by 30.48	Centimeters
Feet by .3048	Meters
Gallons by 3.785	Liters
Gallons Water by 8.3453	Lbs. of Water
Inches by 2.540	Centimeters
Meters by 3.281	Feet
Meters by 39.37	Inches
Miles by 1.609	Kilometers
Miles Per Hr. by 1.609	Kilometers Per Hr.
Millimeters by 0.03937	Inches
Ounces by 2	Tablespoons (Liq.)
Ounces by 6	Teaspoons (Liq.)
Ounces by 3	Tablespoons (Dry)
Ounces by 9	Teaspoons (Dry)
Tablespoons (Liq.) by 0.5	Ounces
Tablespoons (Dry) by 0.3333	Ounces
Temp (C) +17.78 by 1.8	Temp (F)
Temp (F) -32 by 5/9	Temp (C)

LIQUID VOLUME EQUIVALENTS

Gal.	Qt.	Pt.	Fl. Oz.	Cups	Tbsp.	Tsp.
1	4	8	128	16		
	1	2	32	4		
		1	16	2	32	
			1	1/8	2	6
				1	16	48
					1	3
						1

TURF MEASUREMENT

1 acre43,560 sq. ft.