

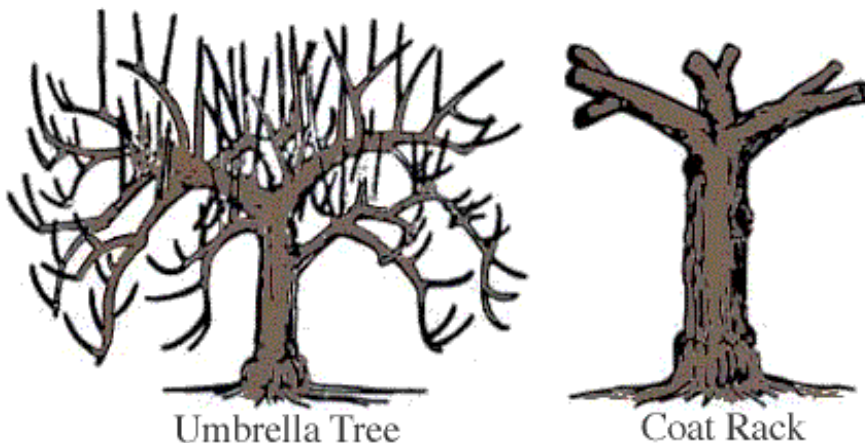


## Fruit Trees

Ask five knowledgeable gardeners how to prune fruit trees and you may well get five very different answers. This is because fruit trees have grown for centuries as food sources rather than ornamental trees. Therefore, everybody and his brother have developed a system to maximize fruit production and to make it simple to pick all the fruit fast, and to make it easy to spray and to do more intensive pruning to produce more and more fruit.

### **IF YOU ONLY WANT FRUIT PRODUCTION**

If you want to maximize your fruit production, most County Extension Services have inexpensive bulletins. They will explain early training of young trees, pruning for production, and what to do with that ugly old apple tree to bring it back into good shape. You will learn the single leader method, the open center method, and the modified central leader method. You will learn about Type IV tip bearers with "blind wood". You will learn how to spread open young limbs (some people use clothespins) or to shore up old limbs with 2x4s to keep them from breaking. All the information in these bulletins will help you produce lots of fruit, but if it seems like too much work and you don't want to learn that much, try the Turnbull method of pruning fruit trees. It is less work and you don't have to concentrate as hard. It makes your tree look good and will produce enough fruit to feed all your friends and family before the fruit rots.



Two common errors in fruit tree pruning.

## PRUNING ERRORS

But first, let's go over what not to do. The two most common errors in pruning fruit-trees are: (1) topping and (2) creating umbrella trees with ugly, sucker-laden crowns.

Topping is unequivocally bad for any tree, including fruit trees. The suckers that shoot back up from a topped fruit tree will not only be ugly, they are too busy trying to get enough leaves back in order to feed the tree to make much fruit.

However, many orchardists will radically reduce the height of apple and pear trees using the *dropcrotch* method of lowering trees. Dropcrotching means you selectively head back to a side branch of a decent size, say one-half the diameter of the parent stem. This is hard on the health of old trees and opens them up to rot. Younger (fifteen years or less) trees withstand this height reduction better. Dropcrotching reduces the amount of sucker regrowth, as compared to topping, but does not eliminate it. Do not use it as a way to keep your ornamental tree small. (More on that later) Don't prune too much (no more than one-fourth total leaf surface) in any one year. And don't try to fix it all in one year. If you have a tree that needs a lot of work, do it over several years.

The second error is the creation of "umbrella" trees. This happens when the pruner cuts to an outside branch year after year -- something you might be tempted to do if you already know something about pruning. This is called *bench-cutting*.

## APICAL DOMINANCE

We now need to understand apical dominance. This is the only hard, technical part. Here is some basic tree and plant biology, which, when you get it, will make everything else dear to you, and you can also impress your friends with some fancy words.

First, we will talk about the last bud on the end of a branch (the terminal bud). This bud releases a chemical that, moving via gravity, keeps the buds on down the line rather subdued. Think of it as the boss bud. When you cut off the end boss bud, or even pull it over, the chemical flow is disturbed and the other buds begin to grow.

Umbrella trees have terminal (boss) buds that are too low. Gravity prevents the chemical from reaching buds down the line, so a crown of suckers develops at the top. To help keep your old apple tree from excessive crown suckering, thin back low branches (they look like hooks) to a branch facing more up and out.

Pick out a major (scaffold) branch and follow it with your eyes. Does it dip down quite far, crossing other, lower scaffold branches and cluttering things up? Then you may selectively head back (prune) to one of its side branches that faces more upward and outward (40° to 60° is ideal). The scaffold branch now ends in

a boss bud with greater *apical dominance*. This will reduce the number of returning crown suckers farther back as well as improve the looks of your tree.

Keep in mind apical dominance if you attempt to reduce the height of your apple or pear tree. It is a good idea to cut back a tall vertical branch to a shorter branch that also faces upward. Basically you are not trying to eliminate all vertical branches. You are simply replacing them with shorter, younger, and fewer vertical branches. This retains some apical dominance and allows the tree to grow a little every year. It's like a volleyball game -- you rotate out a few of the tallest old suckers every year.

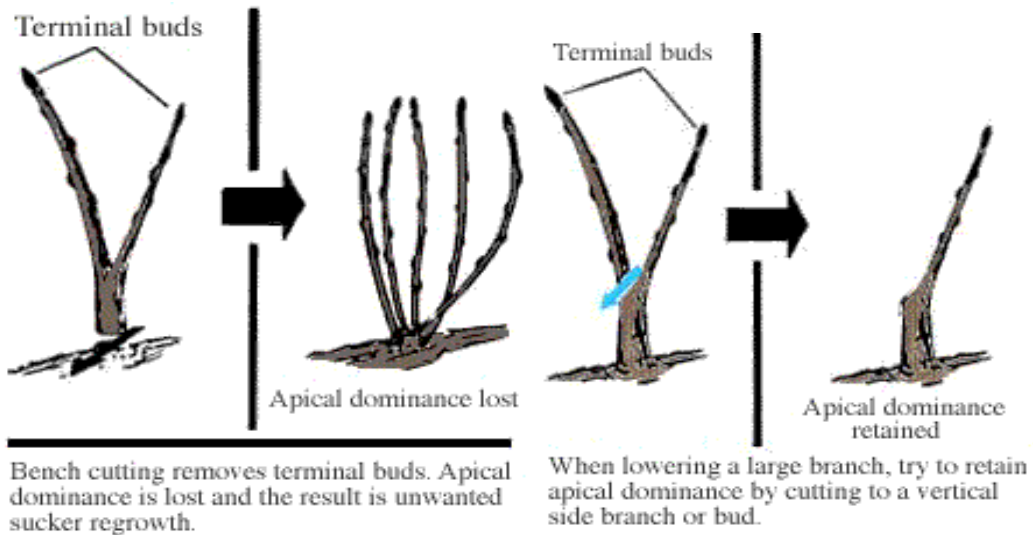
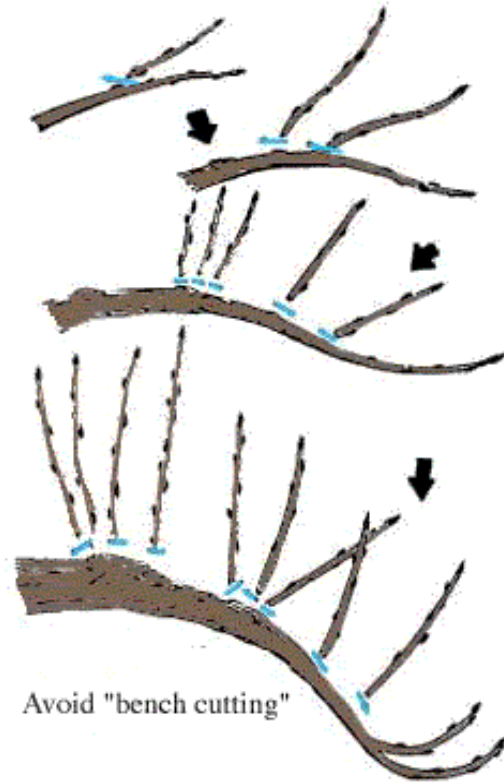
You may have a forest of suckers that are the result of previous bad pruning. If you remove all of the suckers, they all come back. Leave some to apically dominate the rest, shorten some to create a second story up, and thin out the rest.

Note that the natural state of many old fruit trees is an umbrella, which is all right if the umbrella is low down on the tree where you can get the fruit, and if you don't care how it looks. But often the umbrella occurs high up on the tree, shading out the fruit below, and spoiling the overall good looks of the tree.

## **PRUNING FRUIT TREES**

So, how do you prune a fruit tree? The easiest way is just to prune it like other trees: for health and good looks. First, and always, take out the dead wood. Be thorough. Then take out some of the worst crossing or rubbing branches, the worst branches going the wrong way. These are the ones that start on one side of the tree, head the wrong way through the center, and come out on the other side. Also, thin back some of the branches, especially toward the top (even a few big branches) to increase light penetration and to lower your tree. This helps ripen the fruit lower down. It increases air circulation, too, which is important in order to discourage the numerous bacterial and fungal diseases that spoil the fruit. Look for narrow, weak big-branch crotches. Heavy, fruit-laden branches need to be strong. Narrow crotches are the ones that break.

Now, you could stop here and you would have a pretty good-looking apple or pear tree without too much trouble. It will have fruit. But if you want to do more, read on.



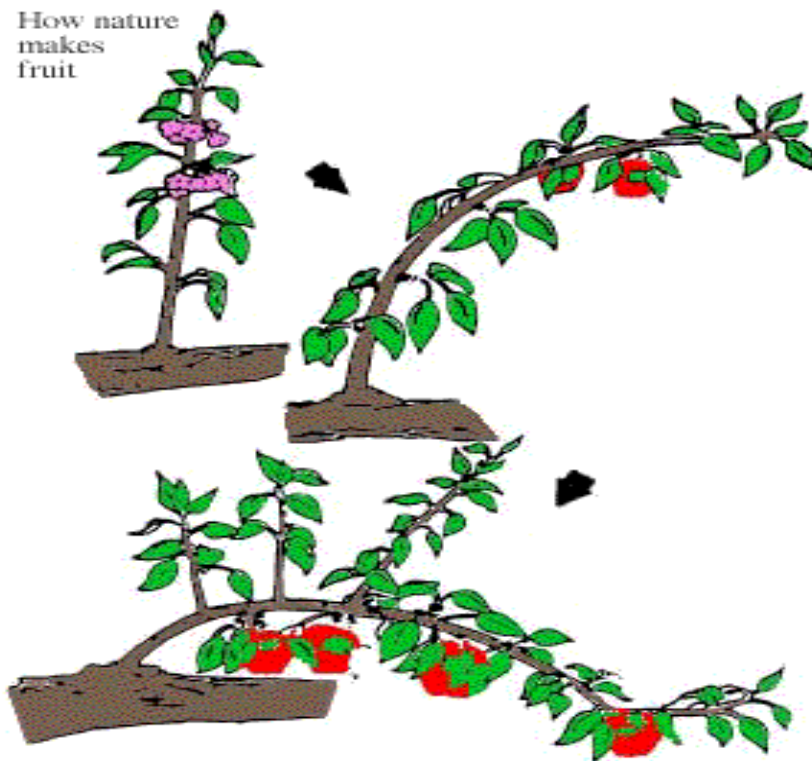
## PRUNING FOR FRUIT PRODUCTION

Certain kinds of branches make more fruit buds or spurs than others. These are the ones that are situated in a not-too-horizontal position. You can pull or push new branches into such a position, or you can just start cutting out the ones that aren't

in the right place and leave the ones that are. Nature makes fruit by sending up a young, straight-up soft branch. It flowers on the tip, and the flower turns into a fruit. The weight of the fruit pulls this supple branch over. As a branch gets older, it stiffens in a more horizontal position. As the branch tips over, the apical dominance of the terminal bud weakens, and buds farther down the branch are released to form nice little side branches (*laterals*) and on them, teeny, tiny 1/4-inch branches called spurs. These tiny spurs have fat flower buds (fruiting buds) rather than skinny leaf buds. We want the laterals and spurs.

In the winter, it is the fat-budded spurs that you see on trees that make you think what you're looking at might be a fruit tree. You can encourage some, but not all, of your side branches (laterals) to make spurs by heading (also called tipping back) to two or three buds. This works on pears and apples, but it doesn't work on cherries.

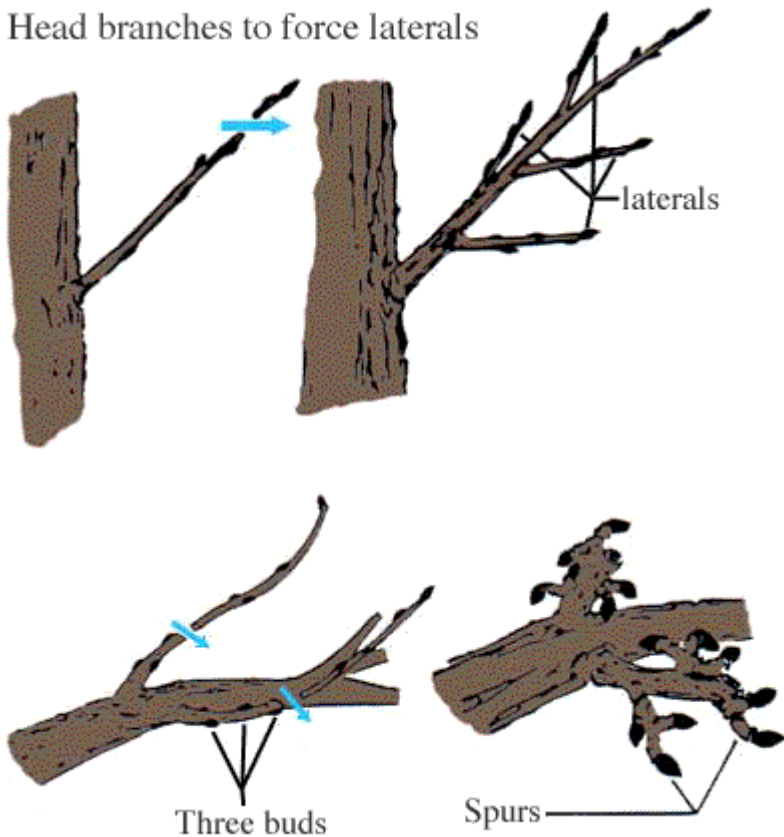
Now, if your main branch gets pulled too far over -- past 90° -- apical dominance is diminished, too many buds are released, and those miserable suckers start charging back up.



In some senses pruning fruit trees breaks all the rules for ornamental tree pruning. You try to keep your tree small, something that should never be done to other trees. Pruners often reduce fruit trees dramatically, which would be extremely bad pruning on a maple or oak. We also head a lot. We head side branches (laterals) to force them to make spurs. We shorten major scaffold branches with heading, especially young ones, so that they won't swing in the wind and lose fruit. Heading causes these branches to get fatter or stouter. We need stout branches to hold up

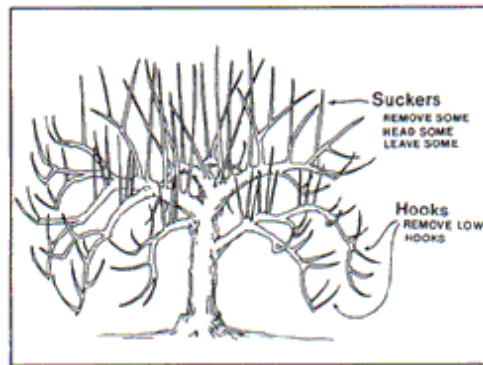
heavy fruit. On apples and pears, especially, we do a lot of heading. Peaches, nectarines, and Japanese prunes really like it when we whack and whale. However, don't do it to your cherries or European plums.

Head branches to force laterals

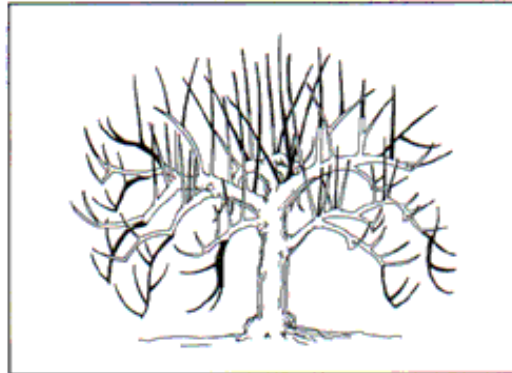


Let's recap what we've gone over thus far. Prune your fruit tree like any other tree:

1. First, and always, take out all of the dead wood.
2. Take out the worst crossing, rubbing branches.
3. Take out the worst wrong-way branches.
4. Take out some, not all, of the suckers.



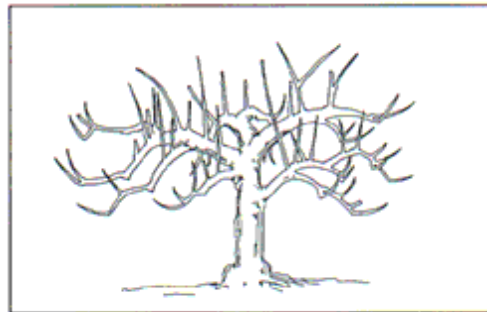
Locate unwanted suckers and lowest "hooks."



With regard to suckers: leave some, cut some out altogether, and shorten some. Remove "hooks" to reduce suckering and to make the tree look better.

5. Remove weak crotches if they are or will become part of the main framework (scaffold) branches.

6. Thin (don't strip) all those branches rather than heading them, and do more thinning on the top to encourage light penetration and air circulation.



Finished fruit tree.

When dealing with suckers on your fruit tree, remember to cut some out altogether; leave some alone (don't cut off the tips), since they will flower and fruit and be pulled over and produce more spurs later; head back some suckers to thicken them up into second story branches. Try to head back to another upright side branch and not to a horizontal branch that would sucker back madly.

If you want to encourage more fruiting on your apples and pears, you can prune for more horizontal branches. You can bead back laterals to force more spurs to form. See, you're an expert already!

## **MORE ABOUT FRUIT TREES**

Here is more information about fruit trees.

- Pruning of young trees (under six years) is done to develop strong, low framework branches and not much else. In fact, it may take a while longer for your tree to fruit. Go easy in the early years. There are some newer varieties that fruit earlier.
- Old trees can be invigorated by heavy pruning to produce new wood and spur systems, although you may experience a temporary drop in production when you cut off older and lower limbs or "hooks."
- Summer pruning of fruit trees is all right if the tree is vigorous and healthy and well watered. Summer pruning can be useful for spotting dead wood (no leaves). It can be useful in reducing the spread of fungus-bacterial diseases that like damp weather, and it will help reduce suckering. It generally slows the growth rate and will help restrict the size of your tree. It is harder on the plant, however, so go easy, and never prune during a drought.
- Proper horizontally-placed branches are only one factor in fruit production. Many fruit trees need a cross-pollinator tree in the neighborhood. The Cooperative Extension Service in your area has lists of what type of tree pollinates what for you and which fruit trees do well. Cross-pollinators are something to consider when you are planning your orchard.
- New dwarf varieties called "spur type" apples don't need to be pruned to make them set up spurs. They do it themselves. In fact, be careful that you don't prune them off.
- Bee activity is needed for pollination. If it has been a very wet spring, you may not get enough bee activity. Bees, like some Parks Department workers I know, won't work in the rain. On the other hand, if you don't see any bees and it has been sunny, it may be that someone in your neighborhood has inadvertently killed them with pesticides. Misapplication of some commonly used pesticides can wipe out entire hives. If your neighbor doesn't read the label and applies something like Sevin on plants in bloom during the middle of the day, a bee might bumble into a flower and then carry the poison back to the hive and kill the entire hive. This is a tragedy for the orchardist as well as the bees.
- Fruit trees need sun in order to flower and fruit. If your tree never sets fruit, stand next to it and look up. If you see big trees or condominiums, this may be your problem. You're in too much shade. Try removing your fruit tree and planting

a vine maple, Japanese maple, or other understory tree. These look nice and do well in these conditions.

- Fruit trees, especially Gravenstein apples, sometimes get into an every-other-year routine, which can be modified by pruning. If you wish, you can ignore it. Your tree may be too young. You'll have to wait, be patient! Your tree may be too old. You'll have to prune it or remove it and replace it with something you like better.
- You can improve the size and quality of your fruit by thinning branches so more light gets to the interior of the tree. Also, you can thin spurs and baby fruit, so that more energy gets put into the remaining branches or buds for bigger, tastier fruit. Don't go overboard, though, you might get "bitter pit," "cork," or other fruit tree maladies. Now that you know the basics and how to be patient and moderate, you can develop your own best method of pruning.
- There is a difference in the severity of pruning of European and Japanese plums. Japanese plums should be pruned heavily, like peaches; the strong upper wood should be cut back to weaker branches. Whack! Whack! Whack! Japanese plums and European plums will not cross-pollinate each other.
- These days you don't have to suffer with big fruit trees; nurseries now have new dwarfing rootstocks. So if you want fruit and less work, chop down that old tree and plant a new dwarf one. Dwarfing rootstocks come in small, smaller, and very small. Check it out with your Extension Service. A really smart-sized fruit tree is about 4 feet tall. Unless, of course, you love that old tree -- then keep it.
- Do not try to make your cherry tree small again by topping it. It won't work. They have yet to develop a really good dwarfing rootstock for cherry trees. That's why that big bucket truck with the 70-foot extension is called a "cherry picker."
- People often want to lower cherry trees because they cannot stand the waste of the fruit on the top where they cannot reach. Removing the top would not actually increase cherry production down low. Other people welcome the day when the tree gets tall enough that the birds leave the lower cherries alone.

If after reading this, it all seems very confusing and self-contradictory, well it is. Even people who specialize in fruit tree pruning are often unsure and easily swayed to other methods and ways. Take heart -- teachers send students out to practice on apples and pears because these trees are so forgiving. In eastern Washington, machines mow them to force fruit production. Stay away from topping, especially your cherry tree, and you'll do okay.

## **SUMMARY**

- Traditionally, fruit trees, like roses, are for people who like to prune and spray a lot. Try buying very, very disease-resistant dwarf trees to reduce these maintenance chores.

- You can, if you like, prune fruit trees as you would ornamentals, for health and good looks, and leave it at that.
- Horizontal branches bear more fruit than vertical branches.
- All fruit trees are not created equal.

**Group A.**

Peach           Head a lot  
 Apricot        Prune hardest  
 Nectarine  
 Japanese plum

**Group B:**

Apples         Keep young trees short  
 Pears          Head laterals to encourage fruit spurs  
                   Prune medium

**Group C:**

Cherries       Hard to keep trees short with pruning  
 European  
 plums  
                   No topping  
                   No heading laterals  
                   Least pruning  
                   Train early by bending branches