

## LAB 9 - PRUNING AND TRAINING

### A. Shopping tips:

1. Roots well developed
  - a. Roots white
  - b. Roots not circling
  - c. Good soil
  - d. Full top
  - e. No insects

### B. Trees/Shrubs

1. Make sure they are hardy (zone 3)
2. No insect damage
3. Buy by scientific name
4. No physical damage.

### C. Planting trees --rule of thumb = root ball should be 9" wide for every 1" of tree diameter

1. Check drainage and solve problems
  - a. If you have a problem, you may need to pick a tree that can handle it.
2. Select spot
3. Select proper tree for spot
4. Dig hole twice as wide as root ball but same depth, making sure sides are rough
5. Back fill with dirt from hole
6. Water in
7. Ball and Burlap (B&B) remove rope or wire and burlap from top of root ball
8. Minor pruning

D. Five Forms of Trees Available

1. Bare-root (BR) are the most economical but are hard to handle. Plants must be put in a protected place with roots covered with moist sawdust around the roots until planted.
2. Balled and burlap (B&B) are dug without disturbing the root ball. Remove wires and ropes when planting.
3. Potted trees. (P) have been grown in a container for less than one year. Most often the nursery orders BR trees and pots them early in the spring.
4. Container grown trees have been growing in the container for one or more seasons. Cut off any roots growing in a circle.
5. Large directly transplanted trees. Very expensive and subject to shock if not moved at the right time of year.

E. Fertilization of trees

1. Use a complete fertilizer on trees (N-P-K). Examples are: 8-32-16, 12-36-12, 20-20-12. The fertilizer should not be high in nitrogen (first number), because this could cause too much spindly growth.
2. Hardwood trees should be fertilized early in the spring or late in the fall after leaf drop. Fertilize an area twice the diameter as the tree is tall. Once every year or so is often enough.
3. Evergreens should be fertilized in the spring.
4. The amount to use (it's best to follow label) is about one pound for every 1" of tree diameter (measured at 4-1/2 feet from the ground). This is if you are using a high or medium analysis fertilizer (for example 20-20-20). If you use a low one such as 8-12-6 use 2 lb. per inch of tree diameter.
5. Fertilizer may be applied either in holes you dig or broadcast under the tree. Tree stakes are solid stakes of fertilizer that release nutrients over a long period of time. These are very easy to use and work well.
6. Some trees in North Dakota develop iron chlorosis. This is evident when the leaves turn yellow while the leaf veins stay green. The cause of this is the high pH of the soil making iron unavailable to the tree. Silver maple is especially prone to this problem. Chelated iron is sometimes helpful because it is more available to the plant than the iron in the soil.

## LAB 9 - WORKSHEET

Name \_\_\_\_\_

1. Diagram the procedure for removing a large limb from a tree. Explain why large limbs are removed in this way.
2. Why are narrow crotches undesirable in a tree? What are two ways to deal with them?
3. List three ways to deal with overgrown shrubs. What would be the result of each treatment?
4. If you have an old apple tree in the yard of the house you just bought, how are you going to decide which branches to prune?

**CULTURE AND MAINTENANCE**  
**OF**  
**TREES - SHRUBS - LAWNS**

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# First Approach To Pruning

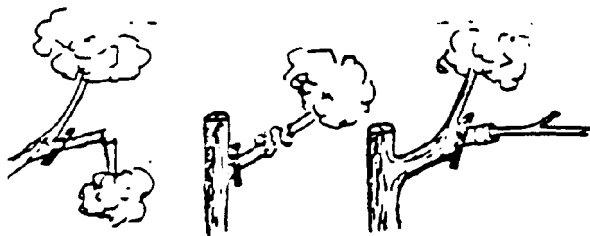
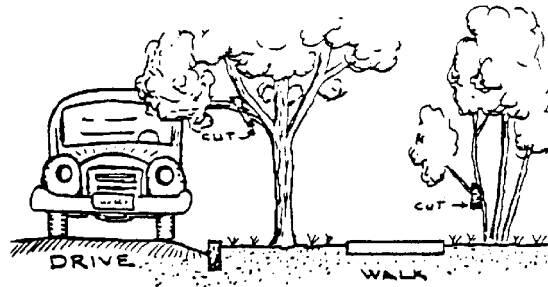
## FUNCTION IS THE PRIME PRINCIPLE OF A GOOD LANDSCAPE

PLANNING IS DONE TOWARDS THAT END.  
SO SHOULD GOOD LANDSCAPE MAINTENANCE!

**FIRST** - Remove all limbs and branches that obstruct walks and drives.

**SECOND** - Prune back to clear all doors and windows.

**NEXT** - Remove all broken, diseased, or dead



branches from all trees and shrubs.

**LAST** - Go back to prune your plants for form, shape, vigor, and beauty!

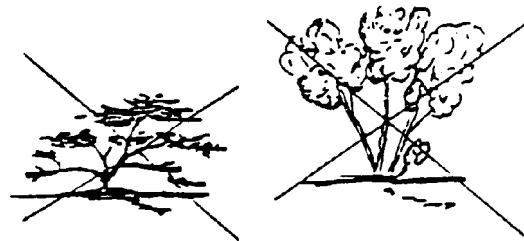
It usually is best to prune deciduous trees and shrubs during early spring before full leaf.

Evergreens, especially shrubs, should where practical, be encouraged to grow and branch to the ground. This not only gives a more healthy plant - But in most cases a much better looking plant.

## RELICS ARE FOR MUSEUMS

When your shrubs get old and leggy

REJUVENATE THEM WITH  
PRUNING OR REMOVE AND  
REPLACE



FOR HAZARDOUS WORK

OR WHEN IN DOUBT

GET ADEQUATE HELP!

# Pruning Your Trees

## WHY PRUNE?

1. To control habit of growth.
2. To remove all dead, broken, or diseased plant parts.
3. To produce desired shape and form.
4. To improve flowering or fruiting.
5. To improve chances of survival (usually at transplanting).

## HOW TO PRUNE:

### USE PROPER EQUIPMENT AND PROCEDURES!

EQUIPMENT - Many types are made and used - Be selective - good equipment is "priceless".

### SUGGESTED BASIC ITEMS:

Hand Shears (7-1/2 inches long)  
Pruning Loppers (26 inches long)  
Pruning Saw (folding)  
Pole Tree Saw (10 foot handle)

### CAUTION!

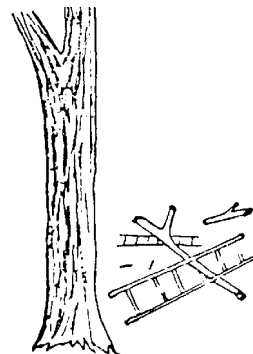
Unless you are a professional arborist - keep your feet on the ground.

**NO BUCKETS! NO LADDERS! NO BOXES!**

**STAY ON THE GROUND!**

Get professional help! --- BUT know what you want done and make sure it is done right! All tree climbers are not arborists!

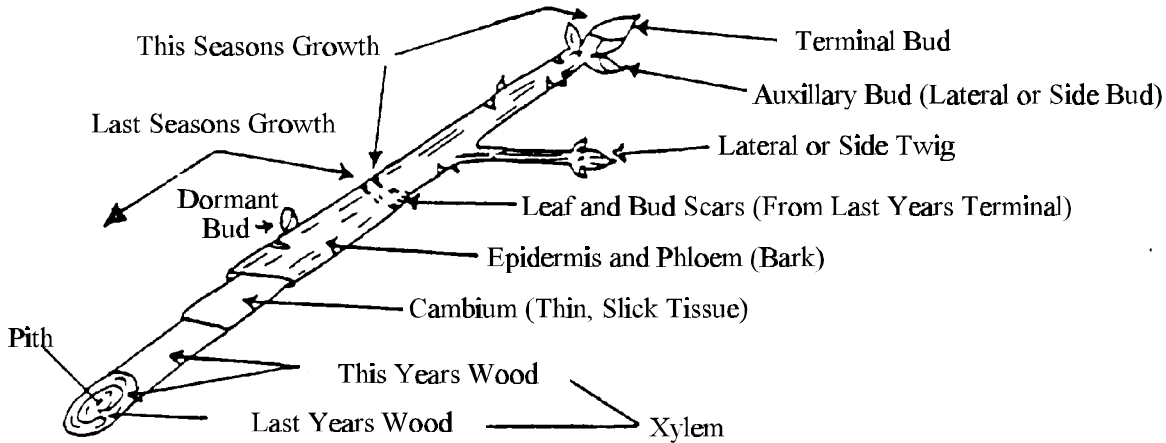
## WHAT YOU DON'T KNOW CAN HURT YOU!



# BOTANY OF PRUNING

Trees grow, above the ground, primarily from two areas.

1. Branches elongate from buds.
2. Branches increase in diameter from the cambium.



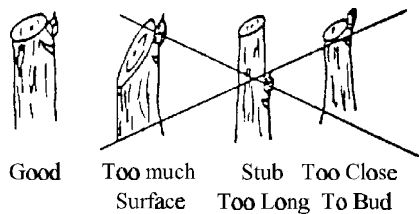
Raw, food making nutrients travel up from the roots through the wood or xylem into the leaves. Here, in the leaves, food is manufactured and sent back through the phloem - out to feed all parts of the plant - twigs - buds - flowers - roots - etc.

If the terminal buds are removed, or twig end cut off side branching is induced, and a more compact habit of growth is obtained.

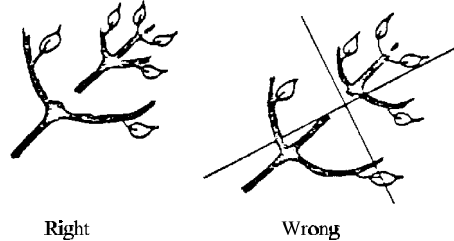
If side branches or laterals are removed, a more upright form results.

## WHERE TO CUT?

IN RELATION TO BUDS.



IN RELATION TO TWIGS.



BUILD YOUR TREE!



Cut to outside buds  
For spreading growth.

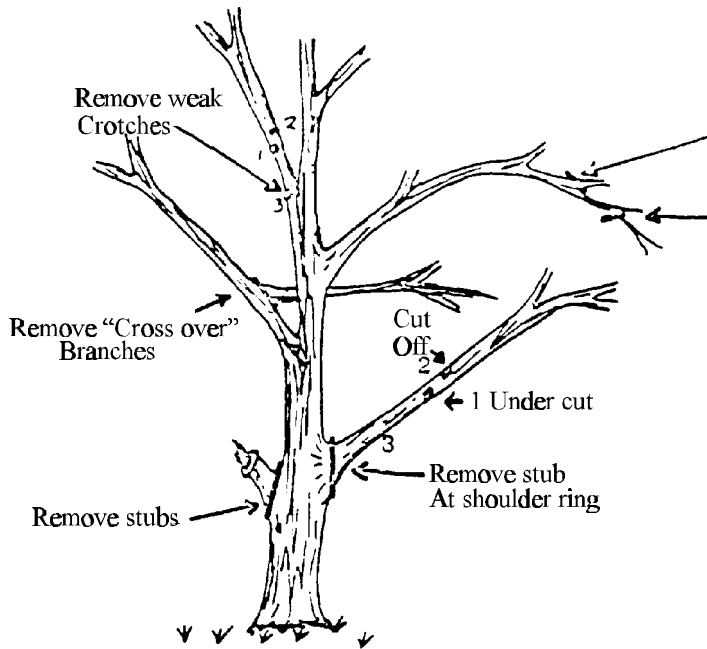
Save inside buds  
For erect growth.

**GROW YOUR PLANTS BY CHOICE,  
NOT BY CHANCE.**

## GENERAL PRUNING

NOTE: For very high or hazardous work.

### GET PROFESSIONAL HELP!



On average high cuts use a pole saw.  
On small high cuts use pole pruners.

On all "heavy cuts" Make removal in three steps:

1. Under Cut
2. Over-cut off
3. Stub removal at shoulder ring

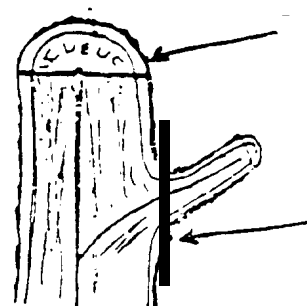
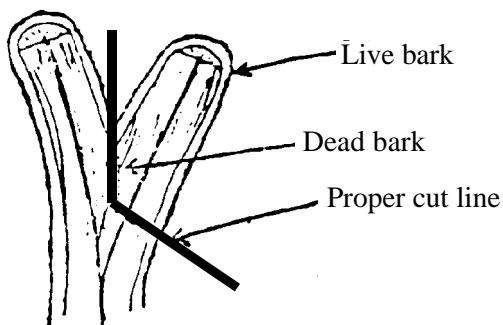
Keep all diseased, dead, and broken branches pruned out of your trees at all times.

Avoid weak crotch branching and remove "Cross over" or "Interfering" branches.

Prune to side branches - Laterals - or Main trunks. Never leave stubs, snags, or ragged cuts.

## BIG CUTS

Live bark



Proper cut line  
Cut at "shoulder ring" (Area of most rapid growth and "Heal over").  
TIGHT-WEAK CROTCH



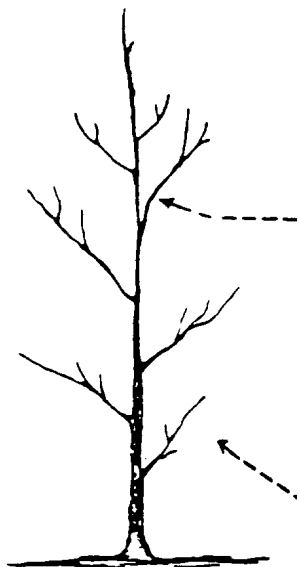
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# The Future of Tree

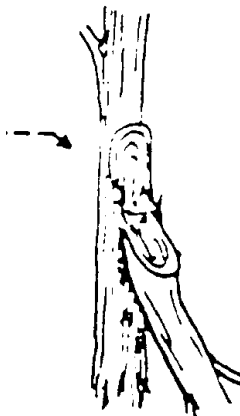
LIES IN YOUR HANDS

# Your

(AND HEAD)



Weak crotch left on



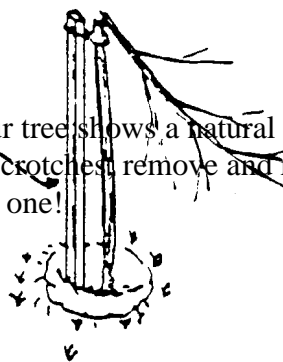
**TIGHT-WEAK**  
Crotches can break off by their own weight!

Remove them out  
young!

From the nursery

Pruned up too high too soon

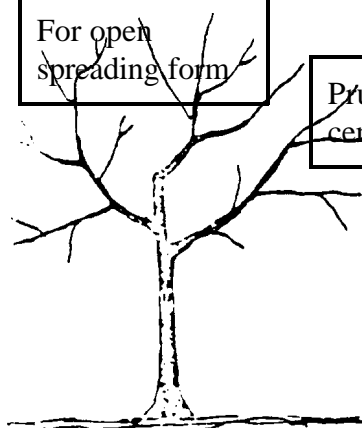
If your tree shows a natural tendency towards weak crotches, remove and replace tree with a better one!



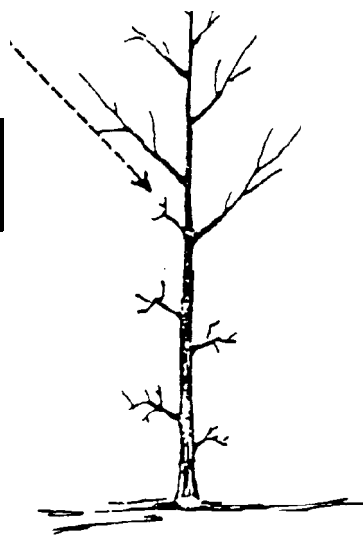
For open spreading form

Prune to a central leader

weak trunk is usually the fate, and package the future!

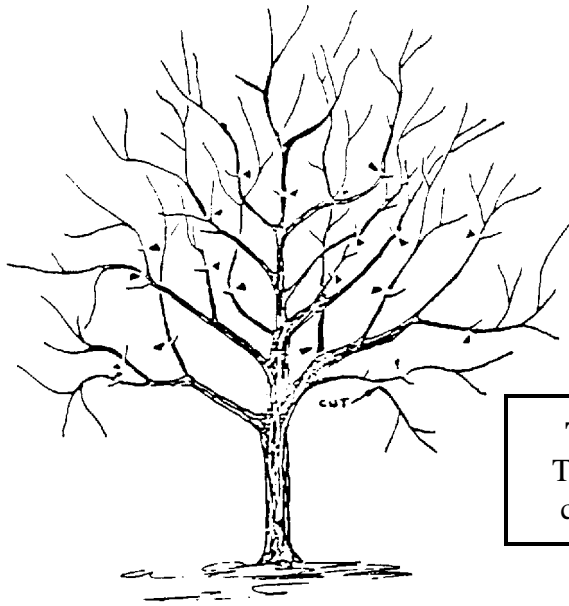


To obtain an open-spreading form, remove the central leader at the height you want the tree to crown out at!

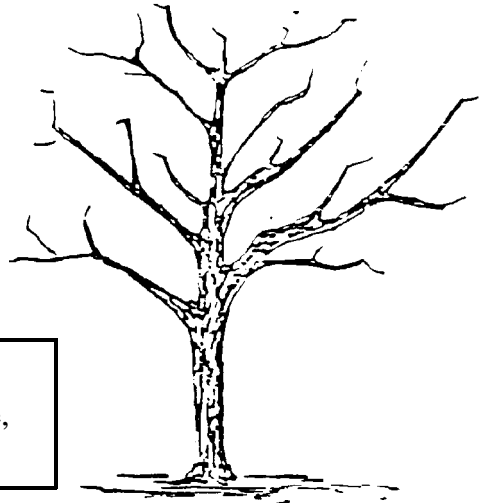


For good upright development, strong trunk, leave the low side branches on for a year or two. Keep them headed back, and remove as tree develops!

# Directional Pruning (Trees)

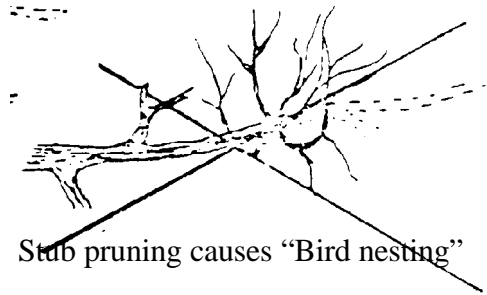
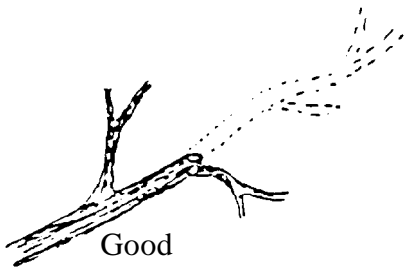


**TOP WORK**  
To Reduce size,  
clear lines, etc.

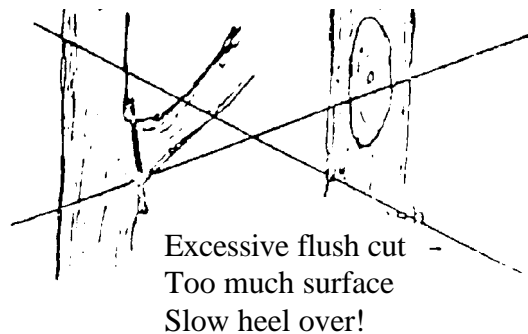
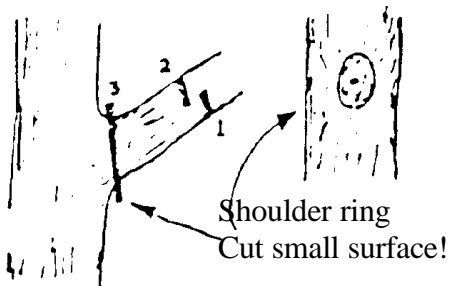


ALL CUTS TO SIDE BRANCHES  
ALL CUTS CLEAN!  
STAY AS NEAR AS POSSIBLE TO NATURAL FORM!

## PRUNE TO SIDE BRANCHES

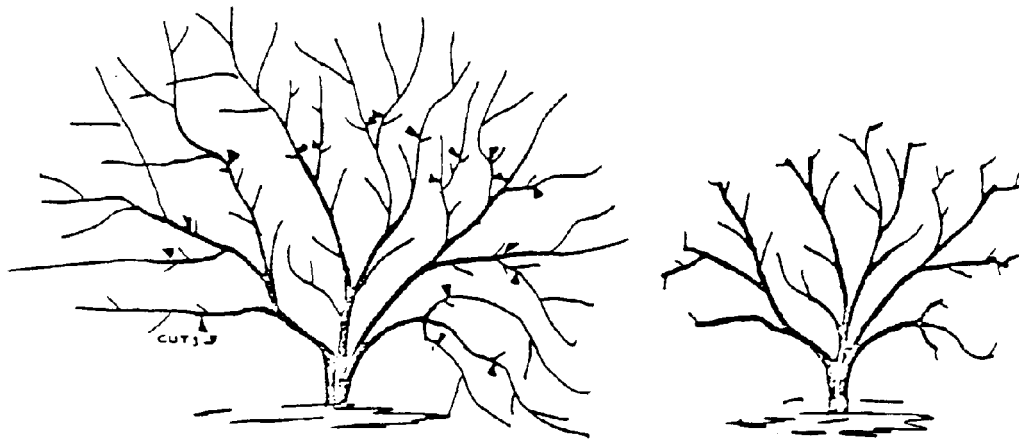
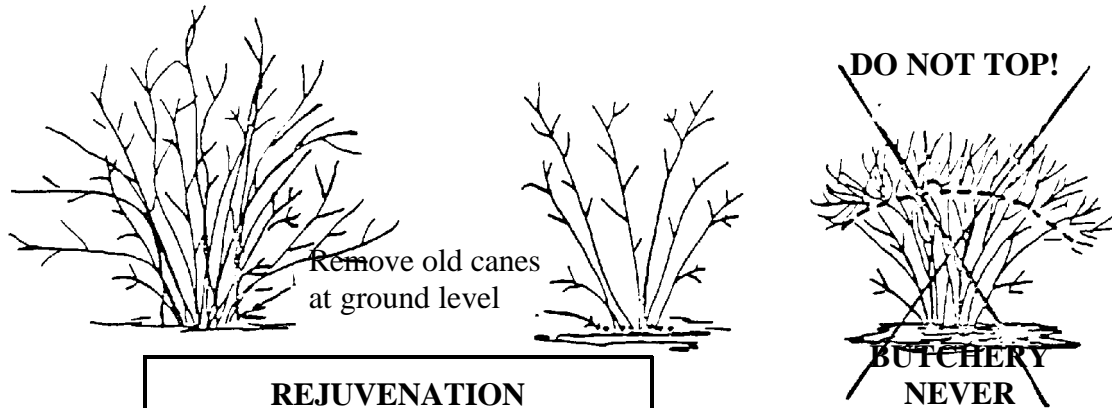


## PRUNE LIMBS TO SHOULDER RINGS



# Deciduous Shrubs

## PRUNE FOR FORM



NOTE: When shrubs get old and leggy - one of three things may be done.

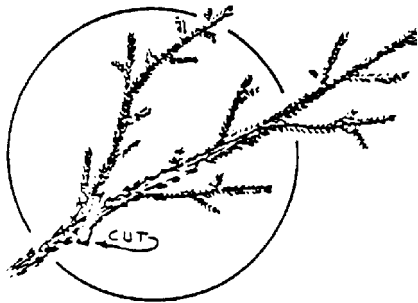
1. Consider rejuvenation. Remove at least half of the existing old canes at ground level. Dormant pruning is best for this. Next year remove remaining canes. As new growth comes up - keep terminal growth pinched back to induce side branching and compact growth.
2. In a few cases you may wish to cut all growth back. Thus allowing all growth to come up new.
3. Complete removal and replanting may be the most practical and economical solution.

# Prune with a purpose on Junipers

DISCIPLINE: "Training which corrects, molds, strengthens, or perfects" - Webster -

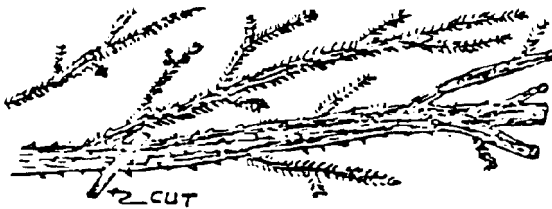
Start when plants are young, if possible! Strive for a disciplined form. Avoid neglect and abuse.

The form to achieve on uprights is with a single - center trunk, and a "controlled" natural look.



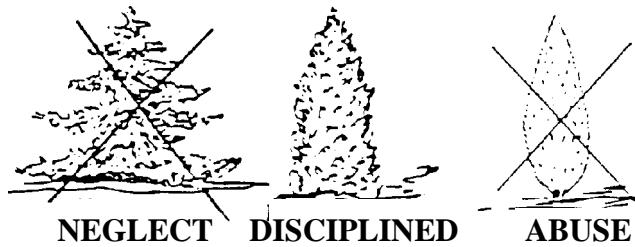
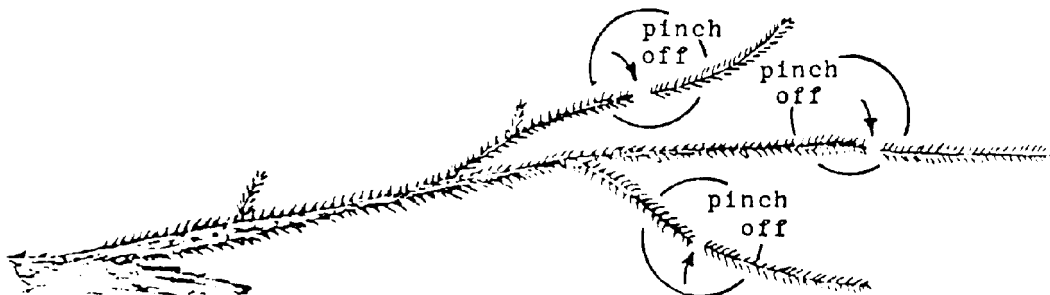
In for the "Disciplined" look. Avoid "Butch" cut and "Scalp jobs".

**AVOID SHEARED AND UGLY ENDS!**



develops each season!

This stops terminal growth and avoids stringy growth!



Prune "Deep" enough to hide all cuts  
Cut "Back In" to a top growing twig!  
Be careful not to leave unsightly "Holes"

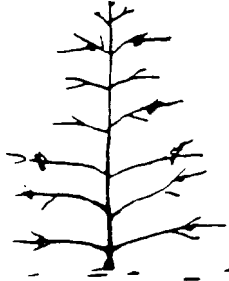


**CUT DEEP**  
Back in and to a top growing branch!

back the new, young shoot growth as it

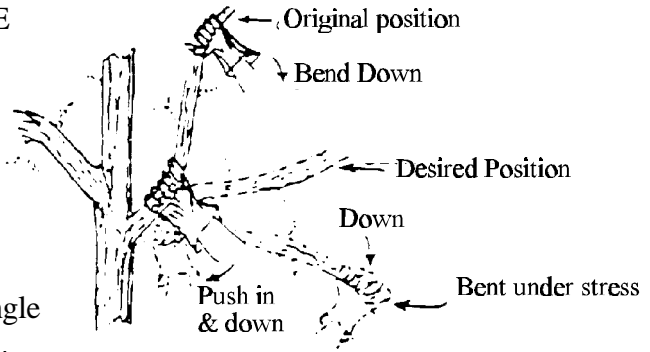
# Building an upright Juniper

START TODAY FOR BEST STRUCTURE CONTROL.

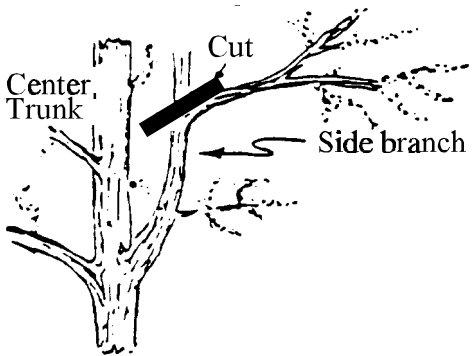


Uprights are best maintained with a single center trunk or "leader".

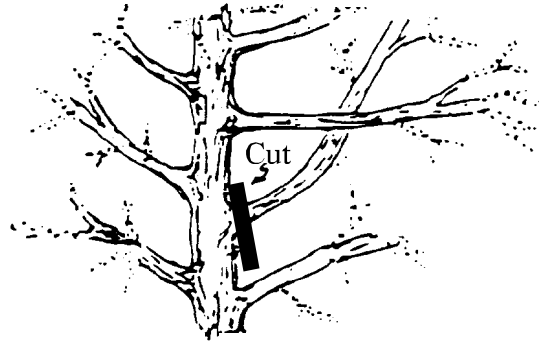
Prune selectively, do not shear. Prune each branch individually. Hedge shears may be used for the final shaping and "trim up" of the stragglers.



Branches tending to grow vertically or "tight" should be grasped firmly and bent gently for a more horizontal position before pruning. GO SLOW AND EASY.

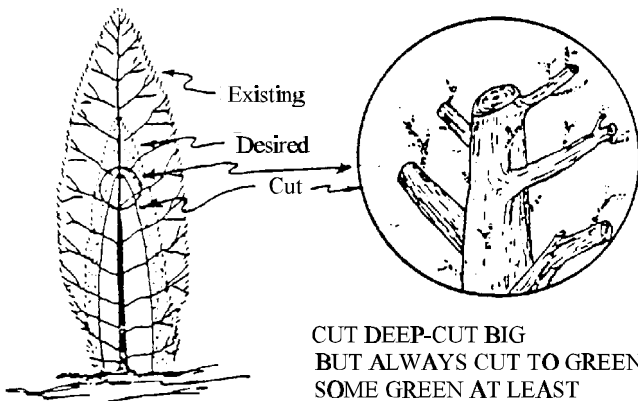


Where "tight inside" branches can not be safely bent. "Head back" or prune down as far as possible without seriously damaging the form of the plant.



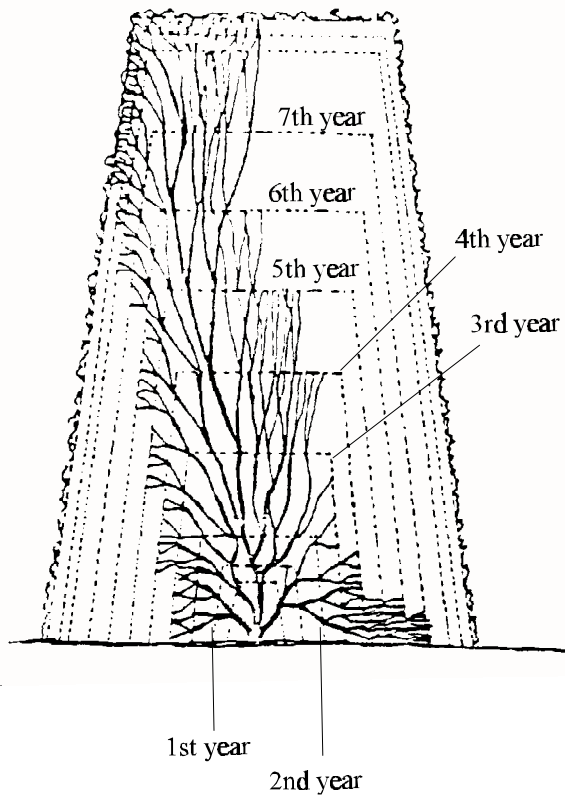
Where close branching has caused crowding and interference. Remove weakest or poorest of those in conflict (cut off at main trunk).

Old or overgrown junipers quite often can be rejuvenated and pruned down to desired size and form (use judgement). In many cases replacement is a better choice then rejuvenation. If the plant has fair vigor and is not to leggy or sparse---PROCEED WITH COURAGE!

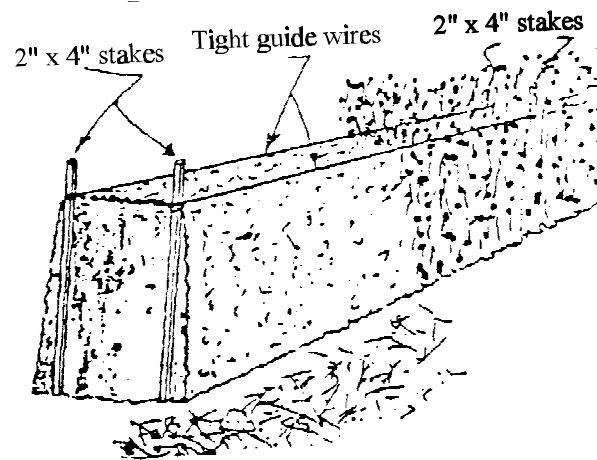


CUT CUT BACK IN EARLY SPRING OR EARLY SUMMER Feed and water properly and your tree should fill in fairly well before fall sets in. NOW SUPPLY CONTINUED MAINTAINANCE

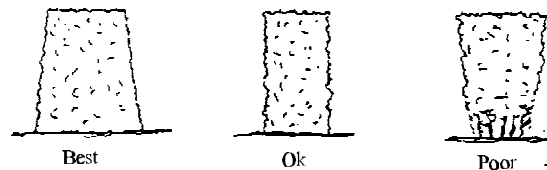
# Building a hedge



Prune when planted and each year after



Stakes and tight guide wires or ropes insure a more even surface. Make sure wire is tight and not misplaced by twig.



Overhanging top edges shade sides, which soon lose their leaves and become leggy.

## SOME GOOD HEDGE PLANTS:

### Low hedge (1 to 3 feet)

- Pygmy Caragana
- Alpine Current
- Dwarf Gooseberry

### Medium hedge (3 to 6 feet)

- Globe Caragana
- Alpine Current
- Dwarf Ninebark

### Large hedge (over 6 feet)

- Honeysuckle
- Rocky Mountain Juniper
- Black Hills Spruce
- Common and Chinese Lilac
- Colorado Spruce

### Screening hedge (over 10 feet)

- Eastern Red Cedar
- Flowering Crab
- Siberian Crab
- Tartarian Honeysuckle
- Common Lilac
- Late Lilac
- Amur Maple
- Russian Olive
- Siberian Peashrub (Caragana)
- Black Hills Spruce
- Colorado Spruce