A photograph of a person wearing a dark blue jacket and a tan cap, using red-handled pruning shears to trim a bare, brown tree branch. The background is a clear blue sky. The right side of the image is partially obscured by a vertical green-to-teal gradient bar.

# Fruit Handbook for Western Washington: Pruning

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*<http://maritimefruit.wsu.edu/>*

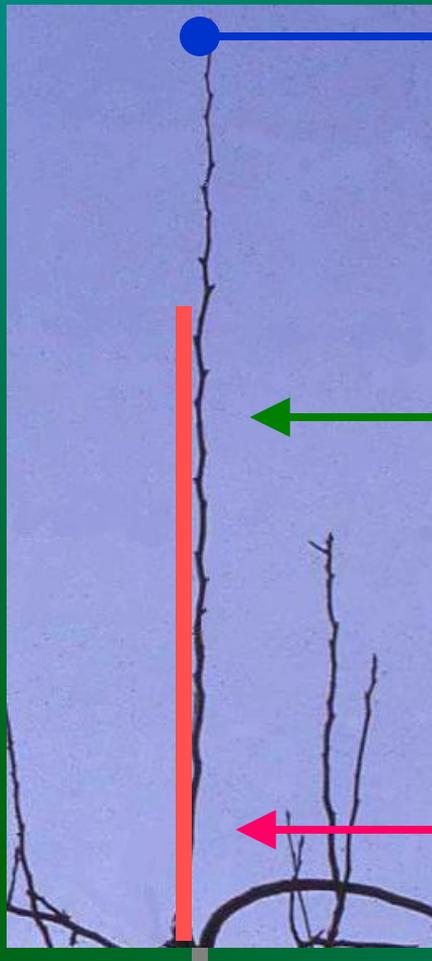
**Apical dominance of vertical tip buds**



**Shoots at flatter angles are less apically dominant at tip**

**How  
a Tree  
Grows**

# Vertical



Tip bud  
generates hormone

Shoot growth  
reduced  
progressively from tip  
to base

Zone of spur  
development

# Limb Angle Regulates Growth

- ❖ Vertically positioned shoots strong vegetative growth but produce fewer fruit buds
- ❖ **Horizontally positioned shoots** weaker growth at the tip but produce more fruit buds

**Fruit buds (spurs) develop on branches in a more horizontal position.**



**New 1-year  
shoots**

**End shoot is  
strongest**

**Fruit spurs on  
2-3 year branch**



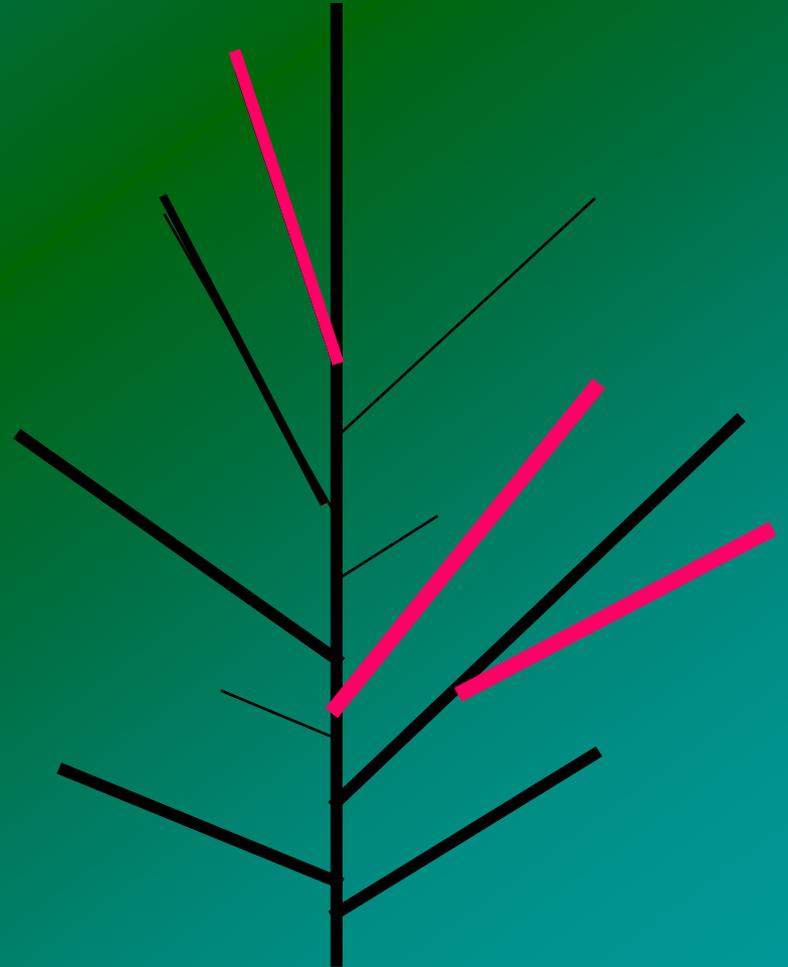
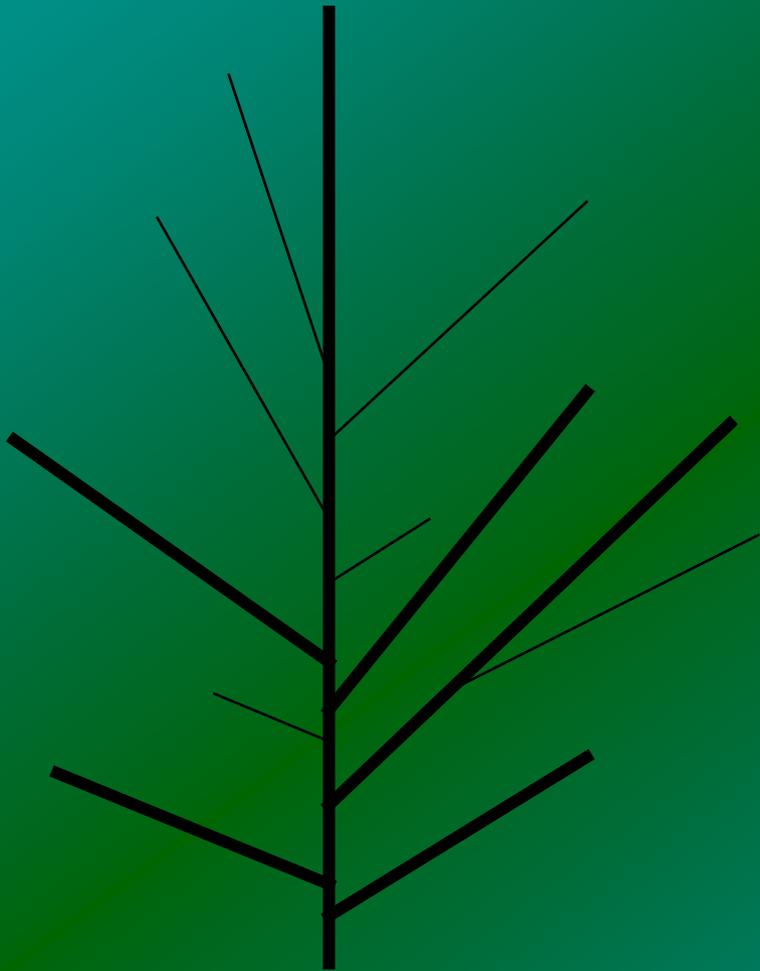
# Why Prune?

- ❖ We prune to open light channels
- ❖ Good light channels throughout the tree enhance tree health and improve fruit quality
- ❖ We prune to keep the tree in balance

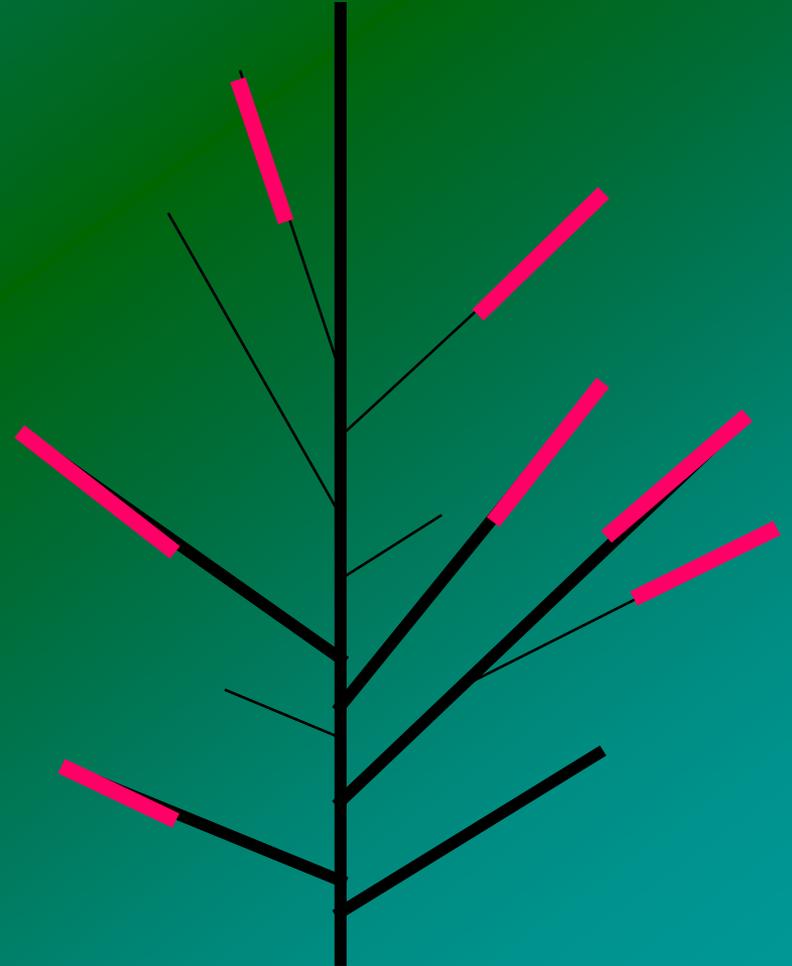
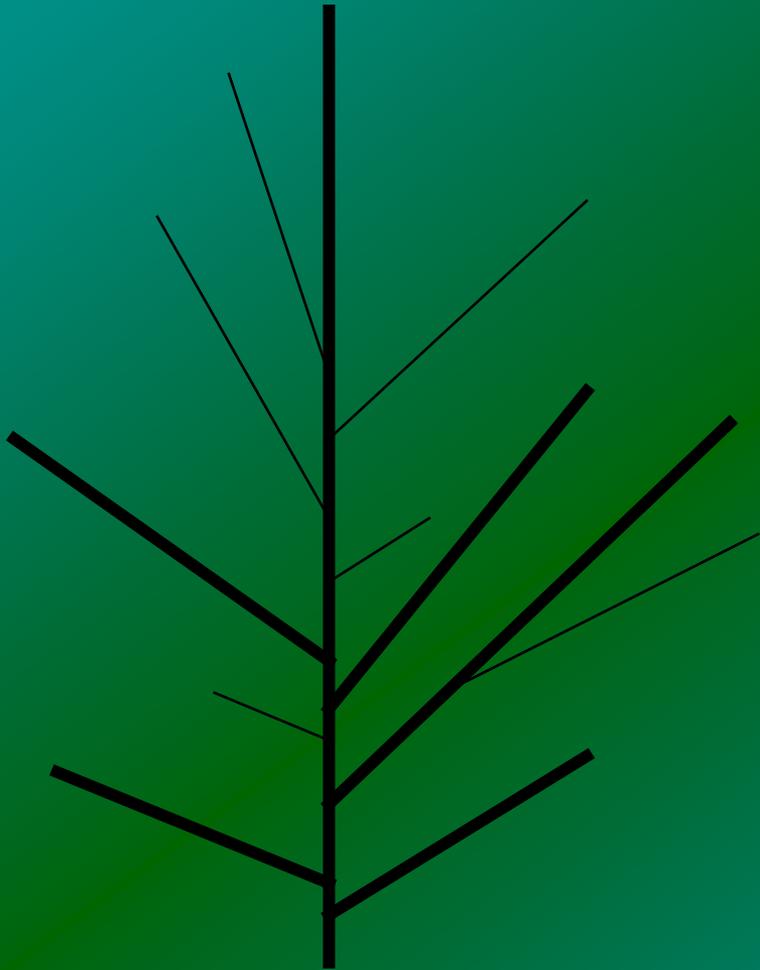
# Two types of pruning cuts

- ❖ **Thinning** – cutting out a whole branch or shoot back to its origin
- ❖ **Heading** – cutting off part of a branch or shoot

# Thinning cuts take out entire branches or shoots



# Heading cuts take off part of a branch or shoot





# Thinning Cuts

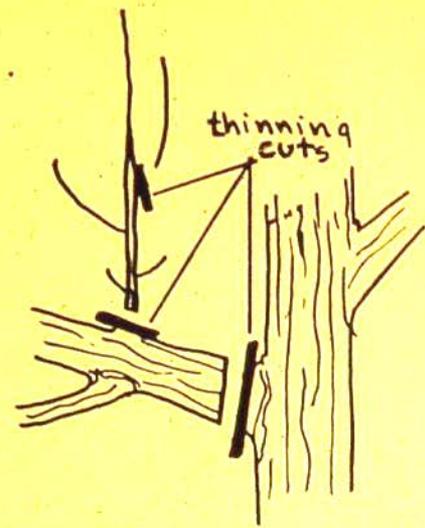
- ❖ **Open light channels**
- ❖ **Increase fruit production and quality**



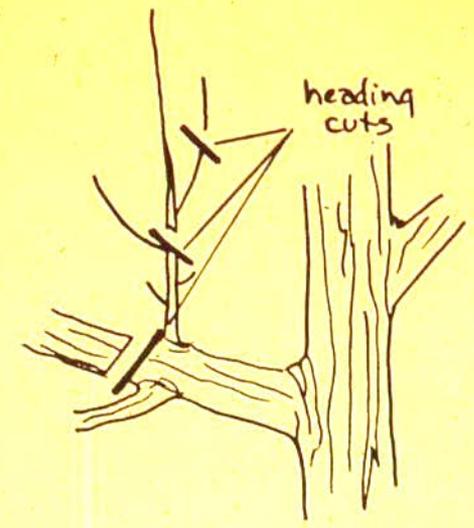
# Heading Cuts

- ❖ Tend to close off light channels
- ❖ Decrease fruit production

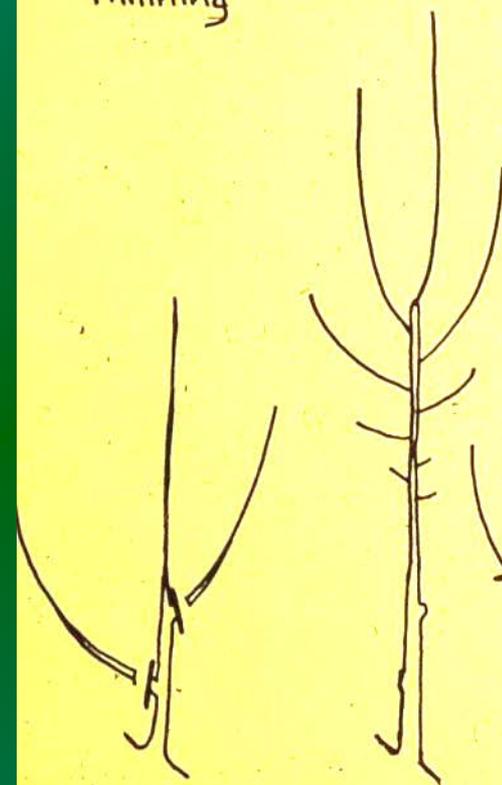
# Thinning vs. Heading: Results



Thinning



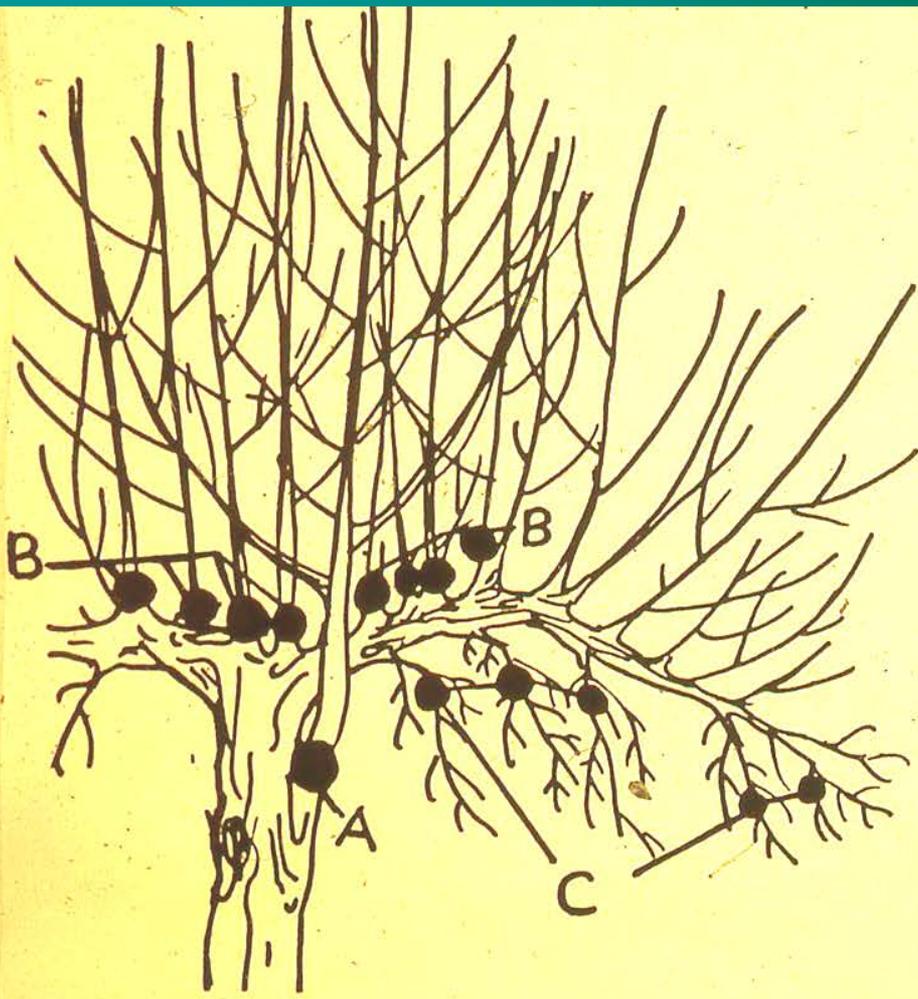
Heading



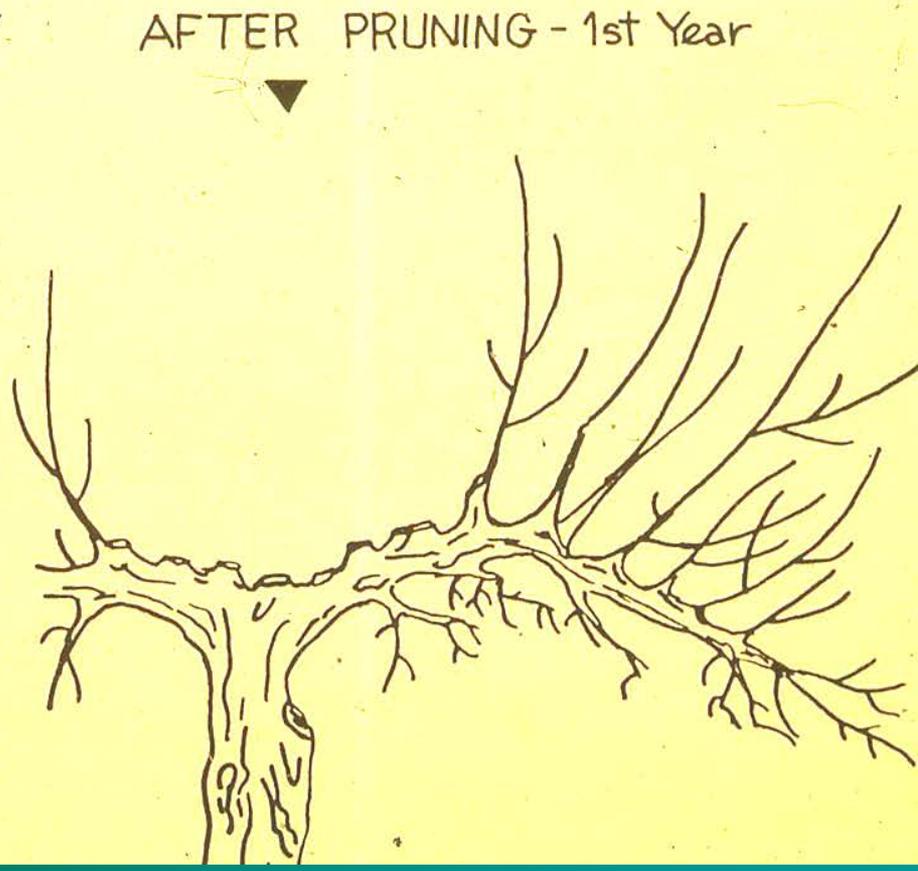
Results of Thinning

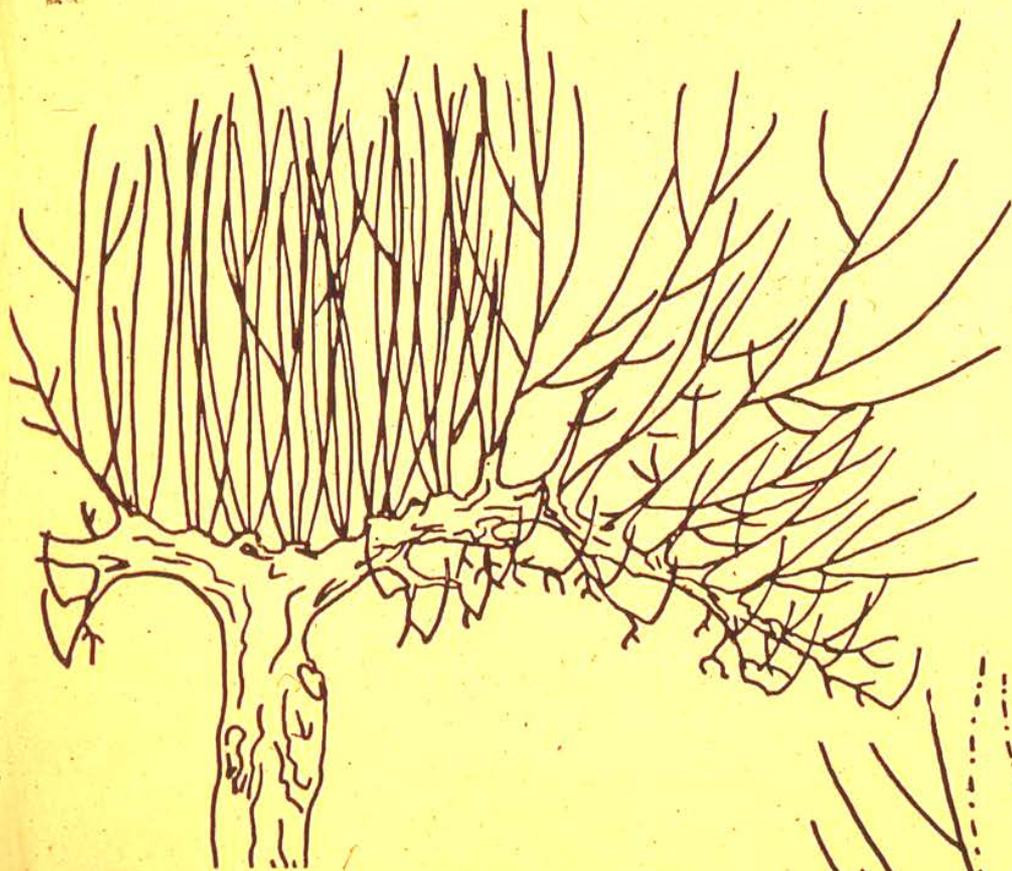


Results of Heading



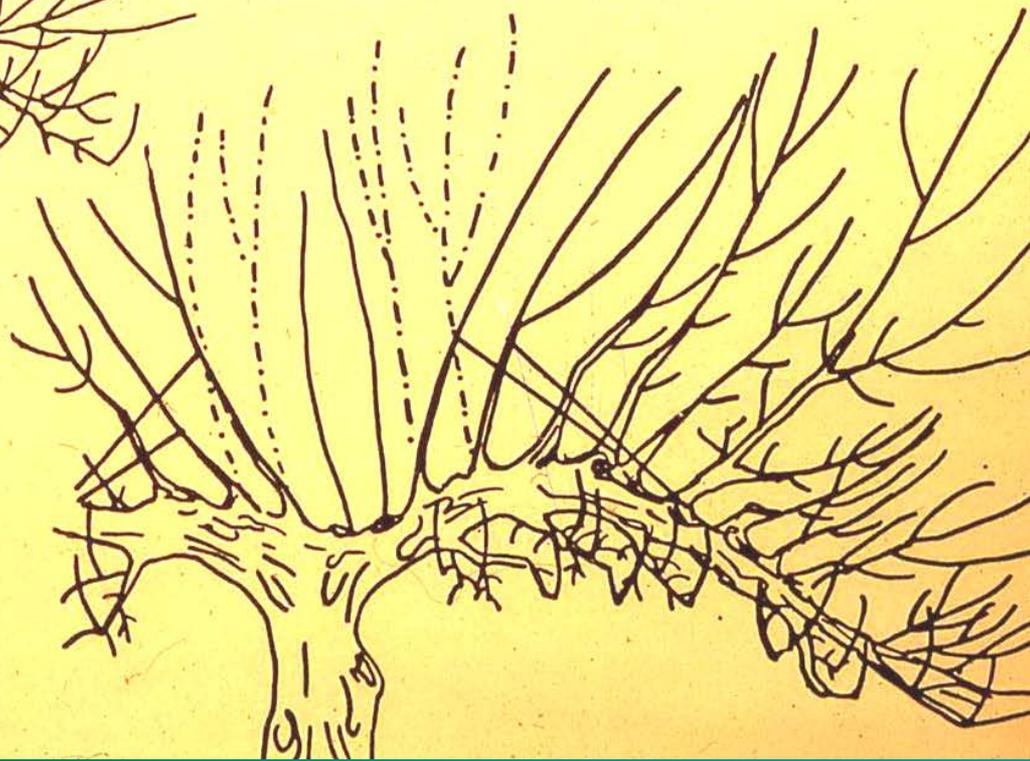
◀ BEFORE PRUNING  
A-B Remove water shoots  
C Head back drooping laterals





◀ REGROWTH  
One year after 1st. pruning

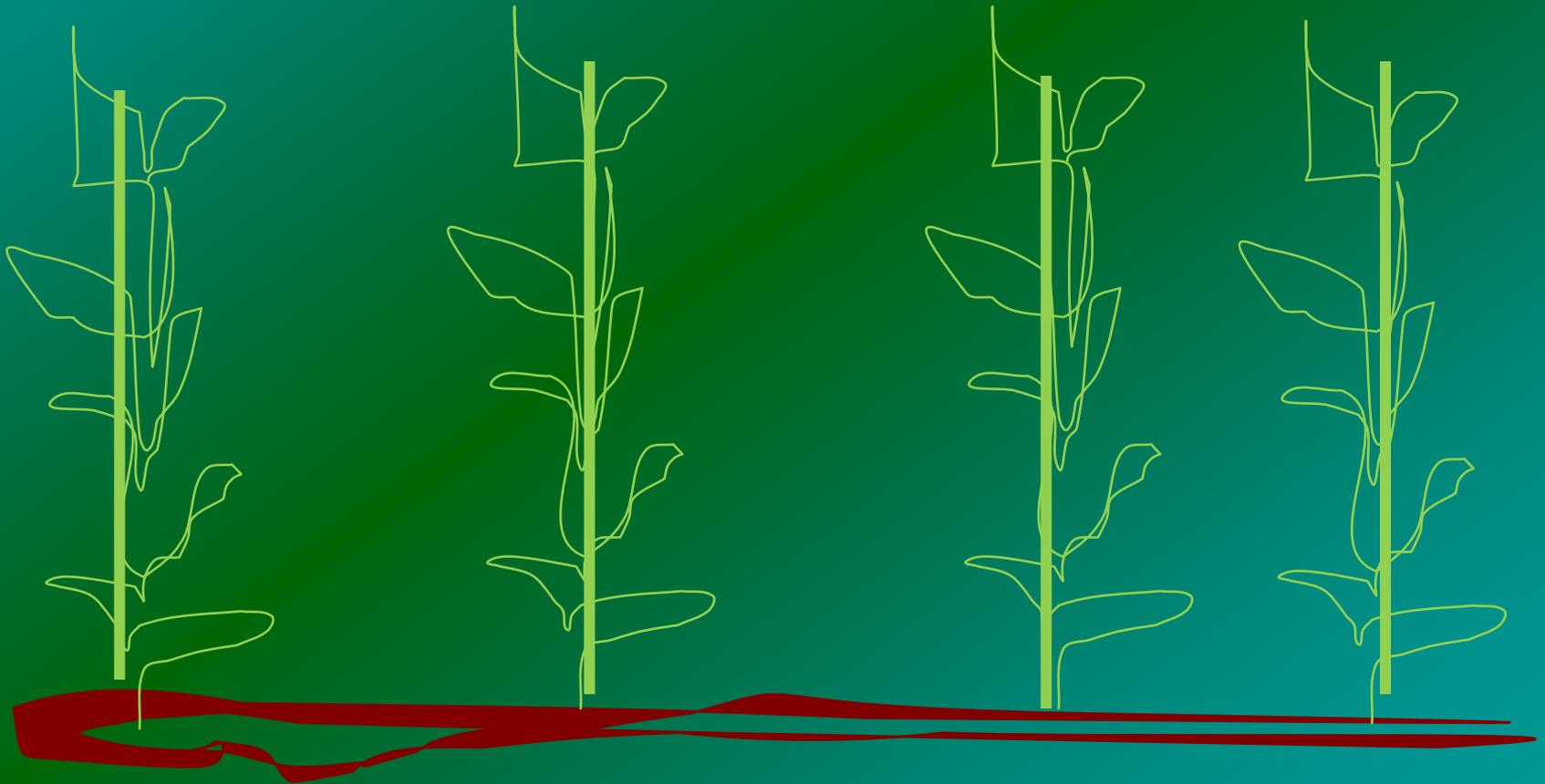
PRUNING for  
annual maintenance

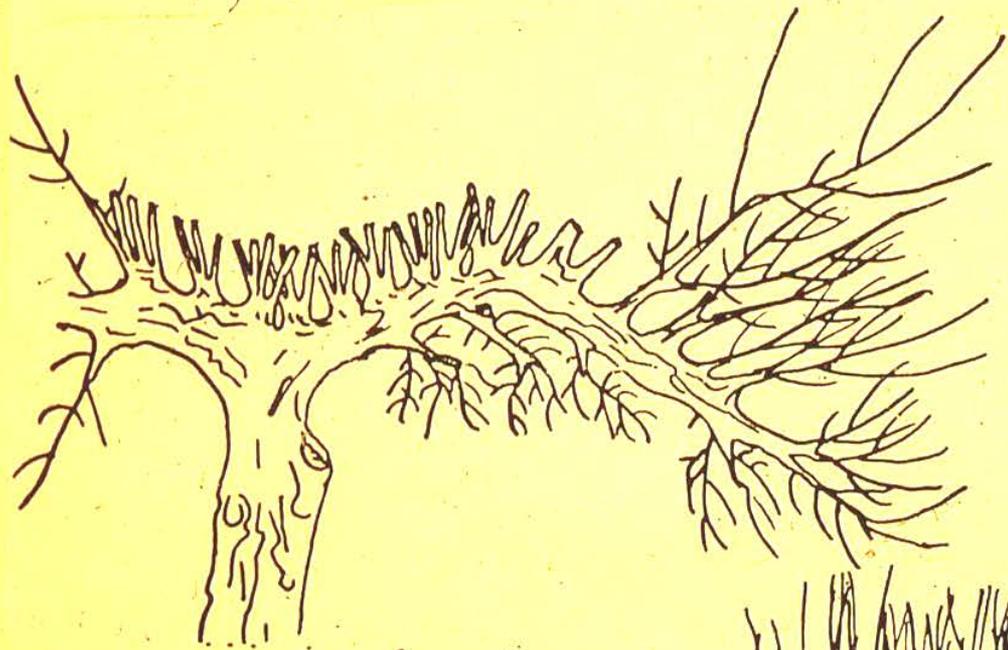


# Thin shoots as you would thin a corn patch



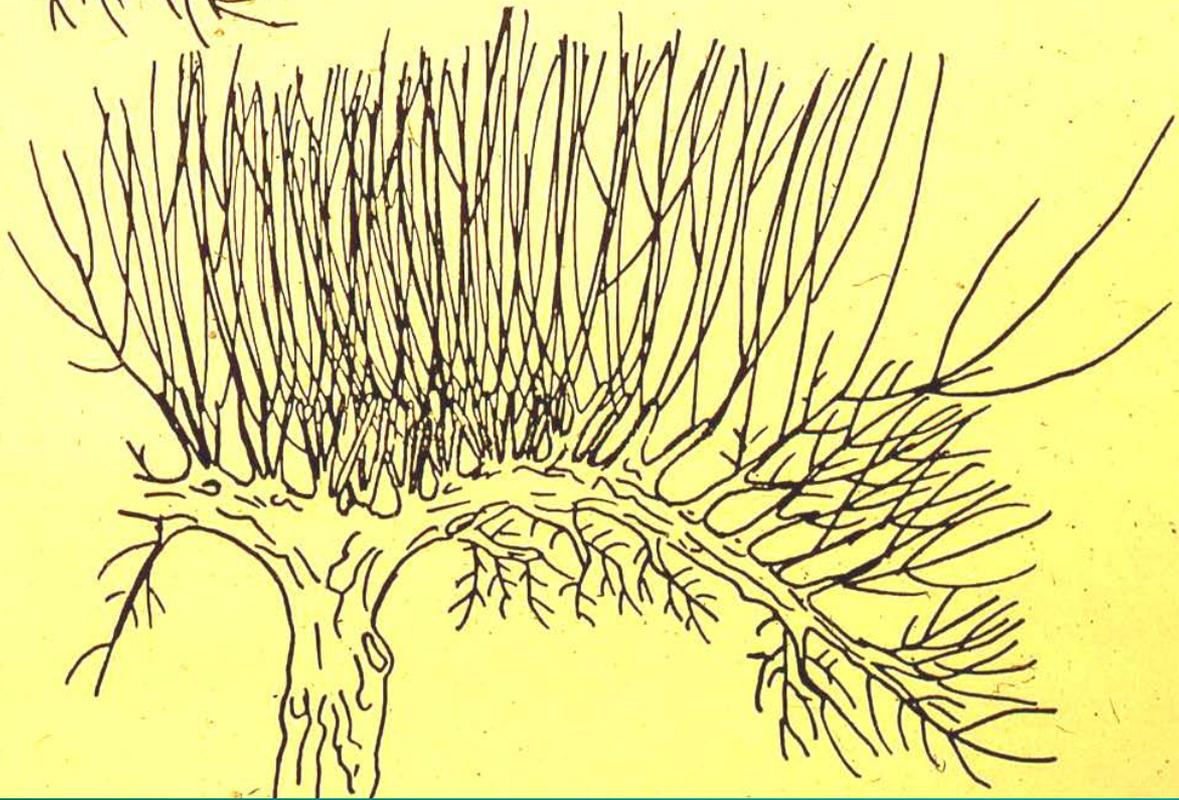
# Space the shoots to let in light and air





◀ INCORRECT PRUNING  
Shoots headed to stubs

RESULT - Mass of  
unproductive shoots



# Why head at all?

- ❖ To stiffen or shorten a a branch
- ❖ To increase branching

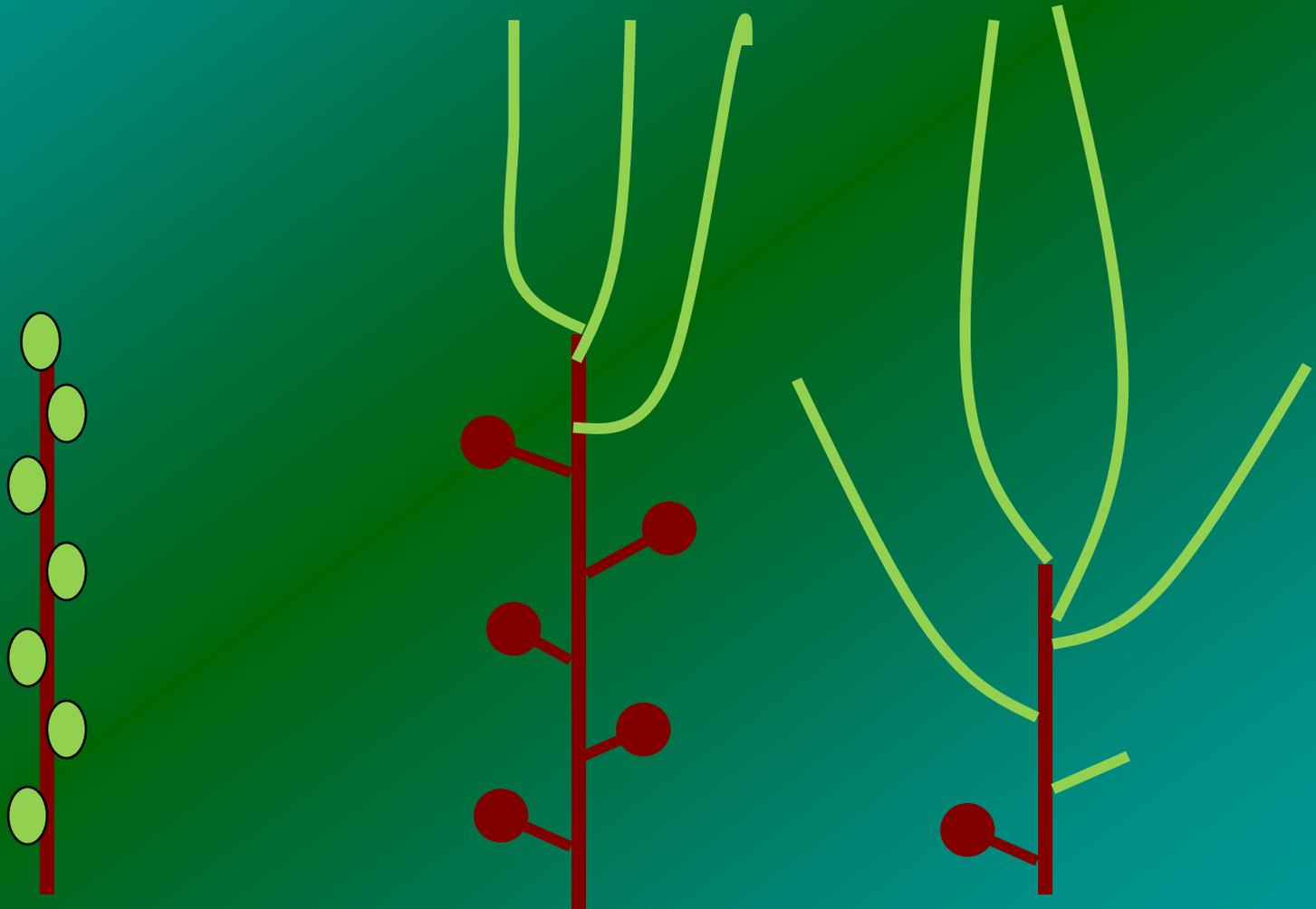


**Heading to  
stiffen or  
shorten a  
long branch**



**Branch is headed and upper branches reduced to prevent shading of lower areas in tree**

# Development of unheaded shoot vs. headed - heading stimulates branching at the cut



# Old neglected tree full of old water shoots



**Before  
pruning  
(L)**



**After  
pruning  
(R)**

**After removing water shoots – better light to tree, easier access**



**Compare the tree on right, after corrective pruning, to the unpruned tree at left.**





**Pruning principles are  
the same**

**For both dwarf trees  
and standard size  
trees**



**Establish your  
scaffold limbs at  
their permanent  
height above  
ground**



**The scaffold limbs become the main permanent structure of the mature tree.**



**No more than 4-5 main branches form the lower scaffold.**

**Weaker branches can be tied up at a more vertical angle to increase vigor.**





# Large diameter branches

should be in the  
bottom of the tree  
and kept open to  
light

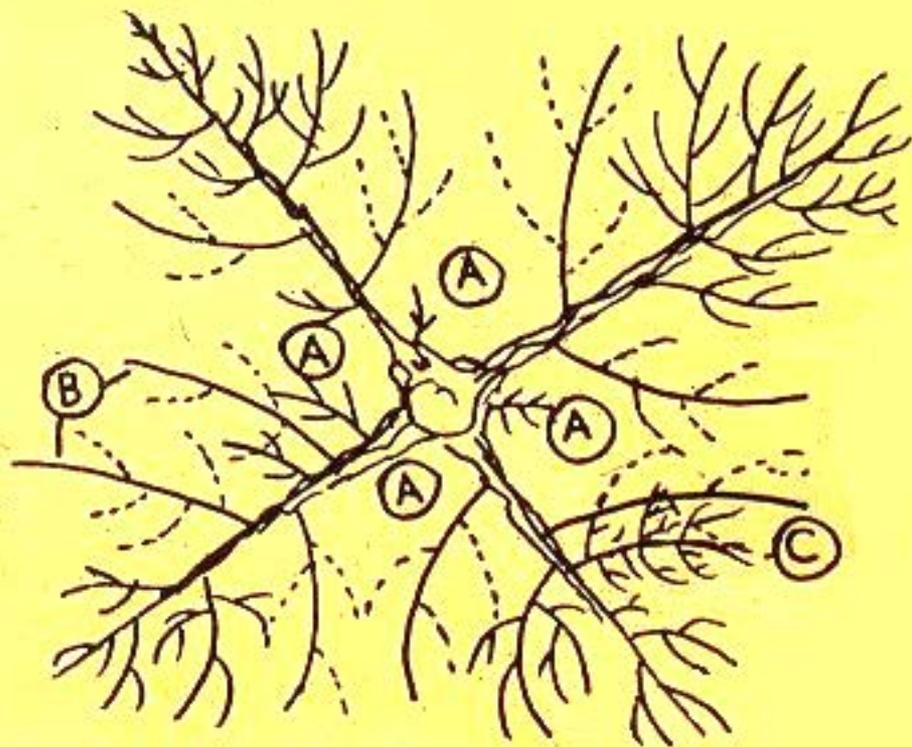


## TOP VIEW

A- ladder bays

B - shoot growth to  
fill in spaces

C - new shoot trained  
to replace weak branch



**Keep ladder bays open by removing crowded branches.**



**After opening ladder bays, there is more space and light access.**



# Remove upright shoots that close light channels between branch tiers





**Small weaker branches  
should be in the top of  
the tree**

**To let in light  
throughout the tree**

# Before Pruning



**After Pruning  
showing spacing  
between scaffold  
tiers**



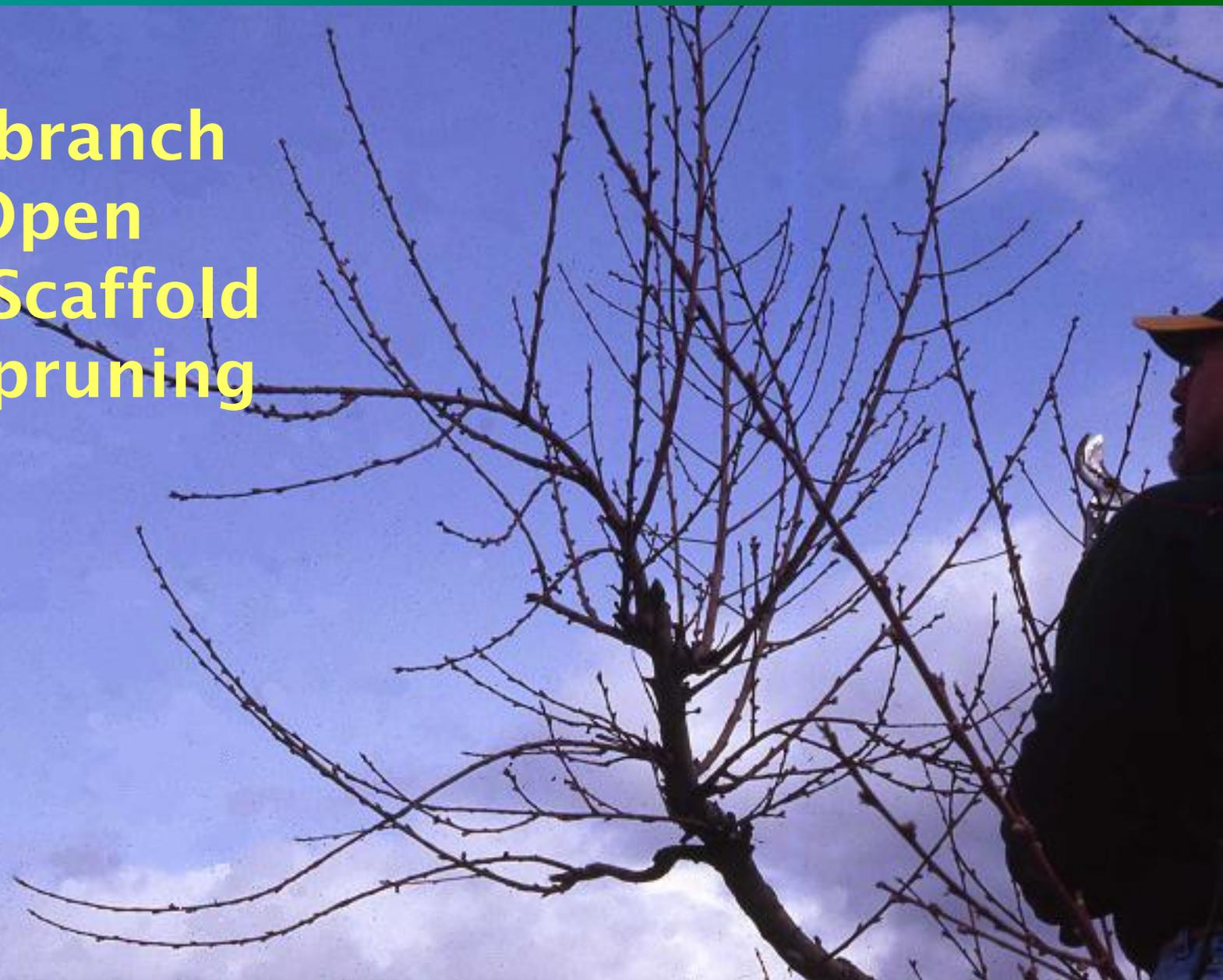
**Keep upper  
branch  
diameter  
smaller to  
prevent  
shading in  
the lower  
limbs**



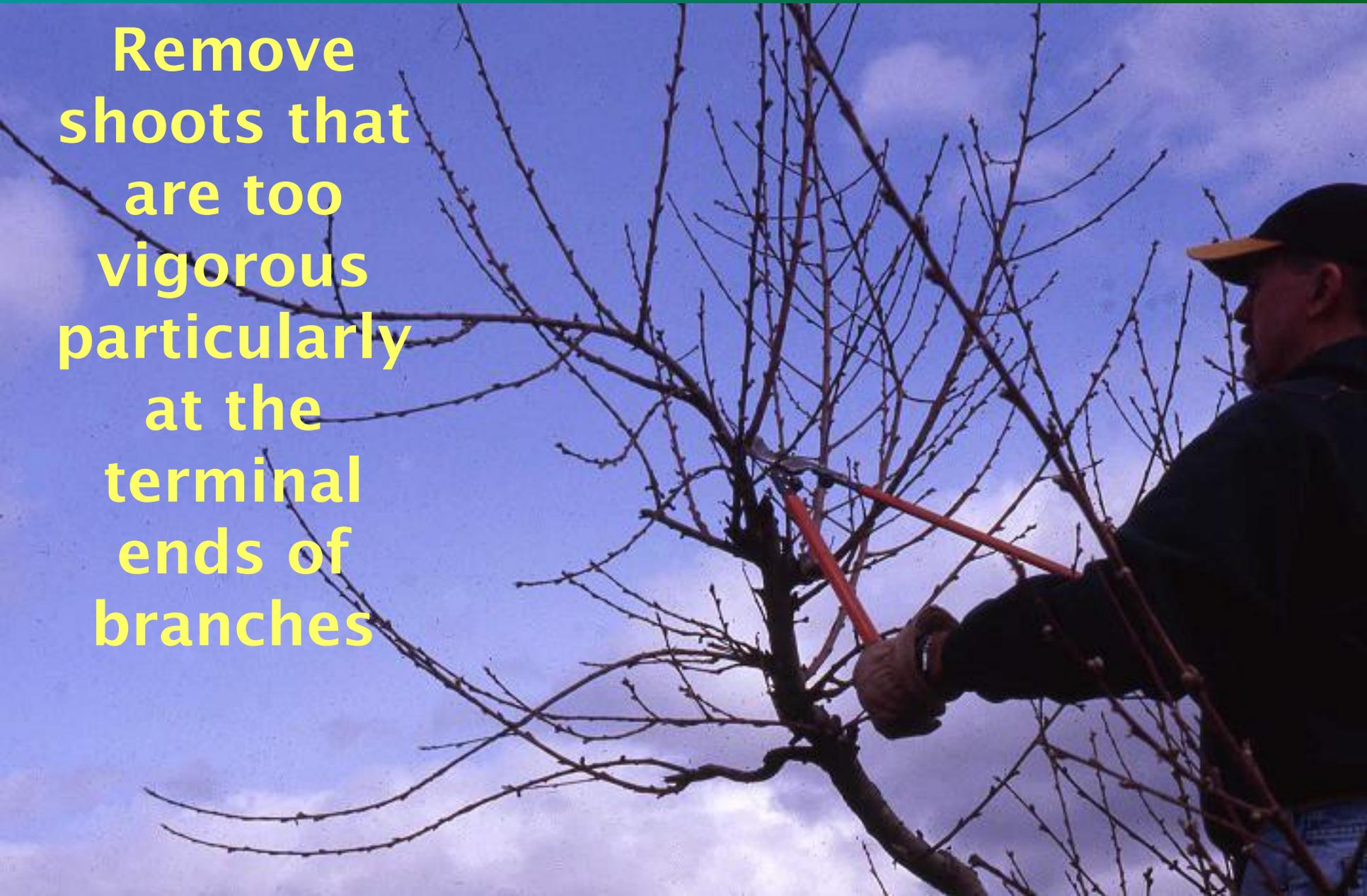
# Open Center Pruning for Most Stone Fruit



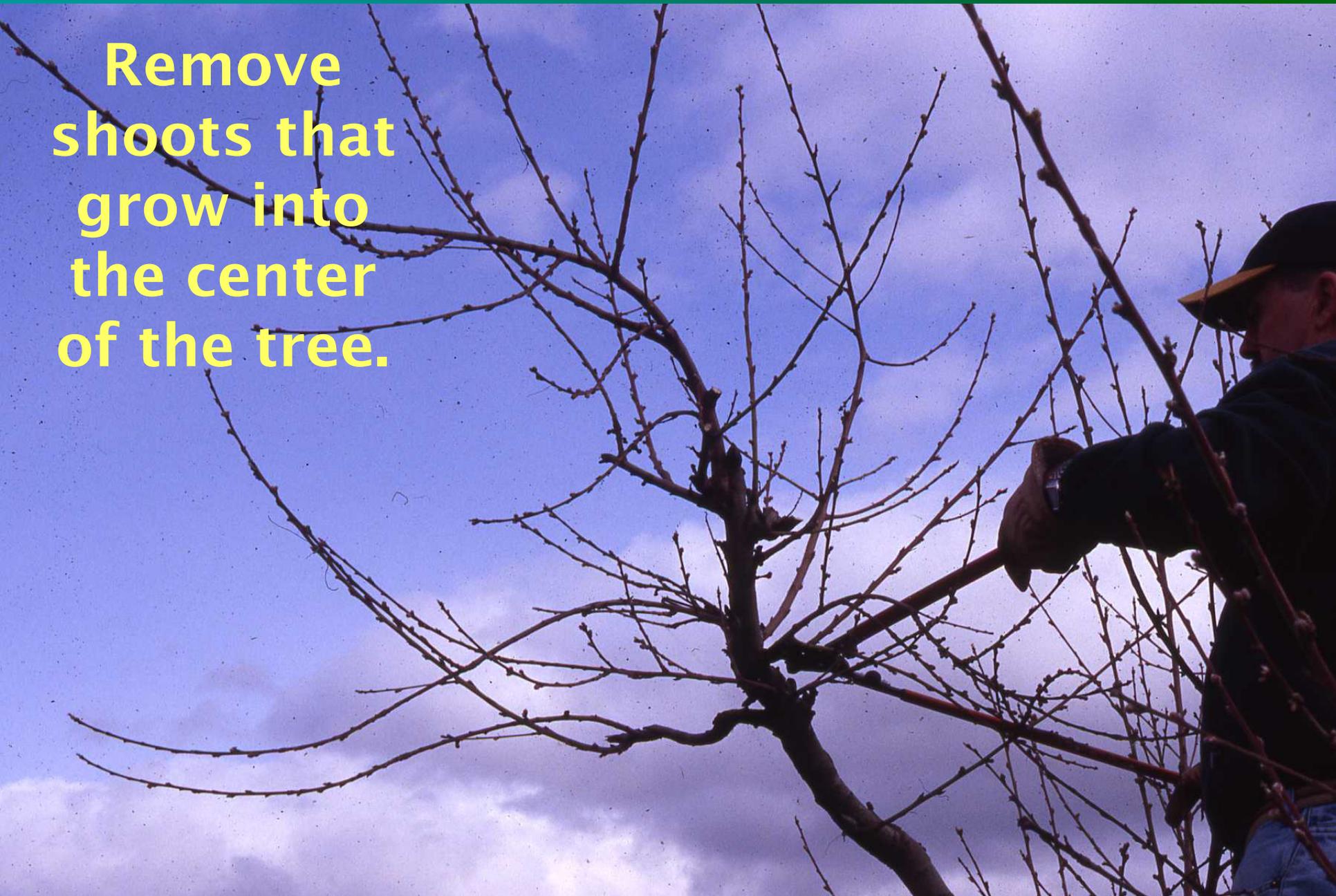
**Peach branch  
on Open  
Center Scaffold  
before pruning**



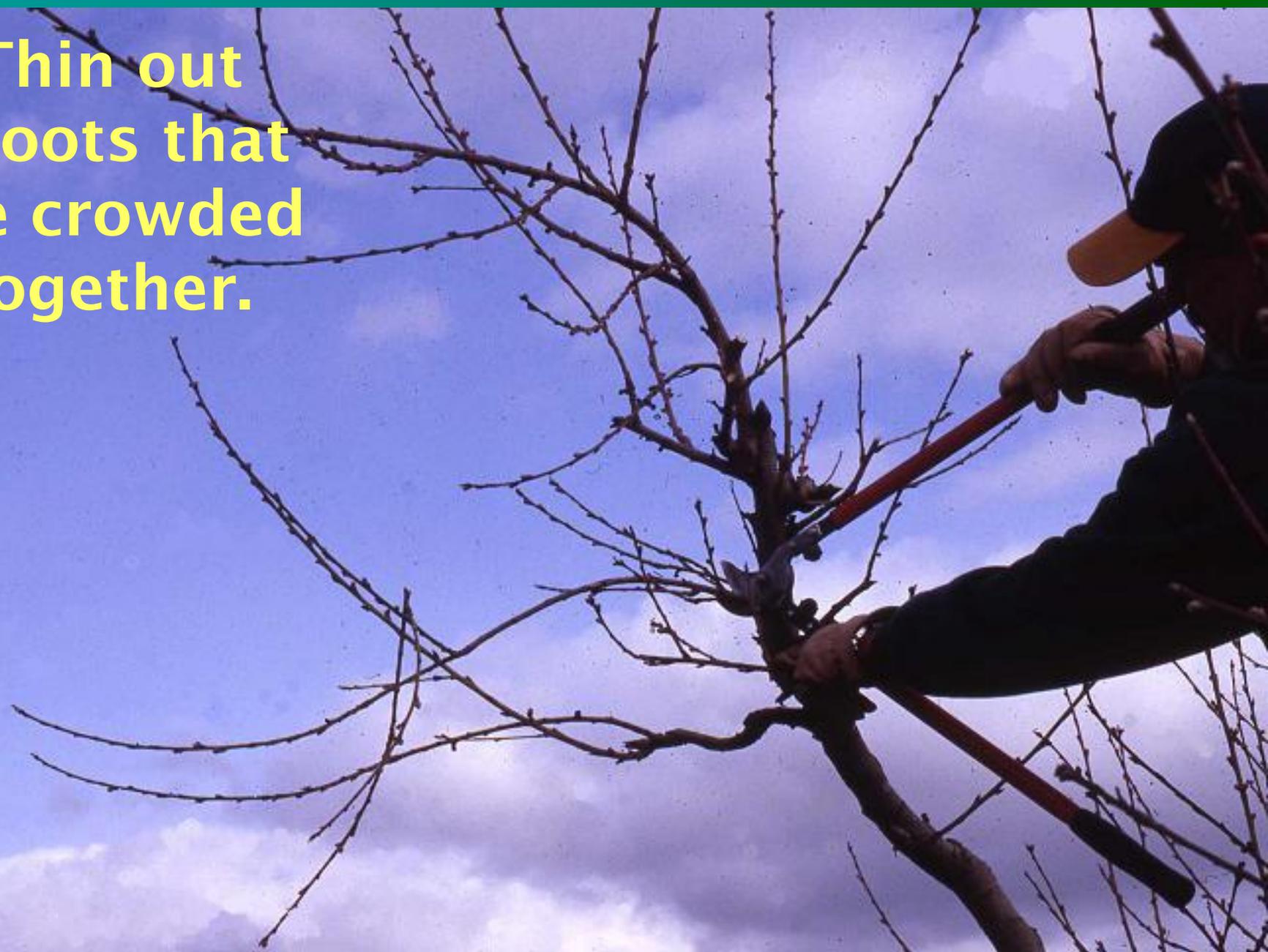
**Remove  
shoots that  
are too  
vigorous  
particularly  
at the  
terminal  
ends of  
branches**



**Remove  
shoots that  
grow into  
the center  
of the tree.**



**Thin out  
shoots that  
are crowded  
together.**



**< Before pruning**



**Pruning  
completed**





**Limb  
positioning is  
very important  
for branch vigor  
and fruit  
management**

**Young apple tree before spreading**





**Limb  
spreading  
to 45°  
angle  
using tie-  
downs**



**Spread a  
vigorous  
young tree  
like this  
before you  
prune**



**Inserting spreaders encourages earlier fruit production. Spreaders can usually be removed 4-6 weeks after growth starts.**



**Young cherry tree tied down with ground anchors.**



**Same tree 4 years later.**

# Summary

- ❖ Start young trees out with a strong framework of scaffold limbs
- ❖ Maintain good exposure to light throughout the whole tree
- ❖ Don't let the top outgrow and shade the lower limbs
- ❖ Make most of your cuts **thinning cuts**
- ❖ When in doubt, thin it out!