

The Fundamentals of Pruning

Pruning is an art and a science. Let's explore the scientific aspects that can help to support farm employees as they develop their skills as a pruning artist on the farm. Use these basic concepts in conjunction with specific guidance from the orchard manager.

TREE TERMINOLOGY

An apple tree can have many growth habits and not all of them are beneficial to producing good fruit. Pruning removes unwanted growth and reduces the tree size. As you discuss pruning practices, the terms shown in Figure 1 might be helpful.

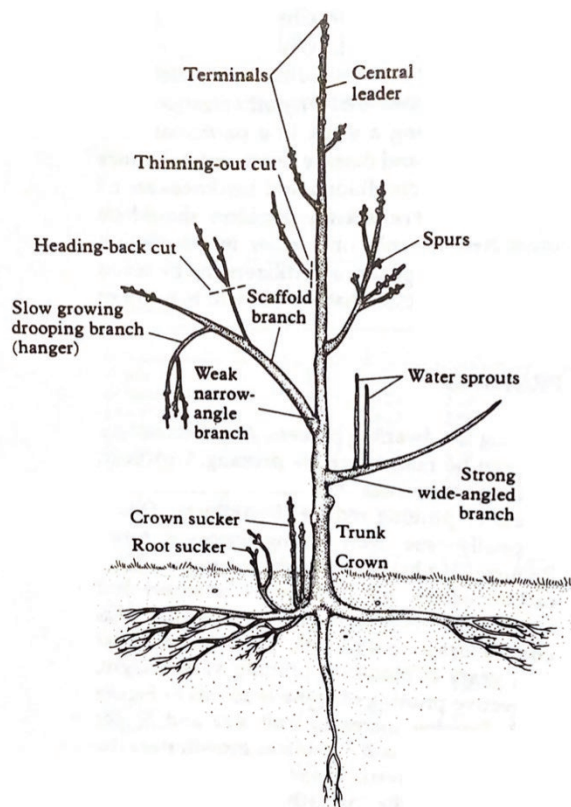


Figure 1. The plant framework indicating terms used in pruning. (Modified from Temperate-Zone Pomology, 3rd Edition, M.N. Westwood pg. 204)

BUD TERMINOLOGY

On an even smaller scale, the different types of fruiting wood and buds shown in Figure 2 can help you envision where fruit will grow. Too much fruit cannot be supported by a tree so pruning removes fruit buds.



Figure 2. Different types of fruiting wood and buds: a) bourse; b) spur; c) spur system; d) axillary bud; e) wood bud; f) flower bud; g) dormant bud. (from Liebster et al., 1982).

THE GOAL OF PRUNING

The productivity of an orchard is directly related to the amount of light intercepted by the orchard canopy. Over time, pruning practices have developed with the following goals in mind:

- Maintain one leader
- Reduce shading
- Encourage uniform vigour and fruitfulness

TYPES OF PRUNING CUTS

Pruning reduces the overall tree size but wherever a pruning cut is made, your cut stimulates tree growth in response. When you are learning to prune, you might imagine what your cut will look like after the tree responds to the cuts – not only what it looks like currently. Examples are shown in Figure 3 and Figure 4.

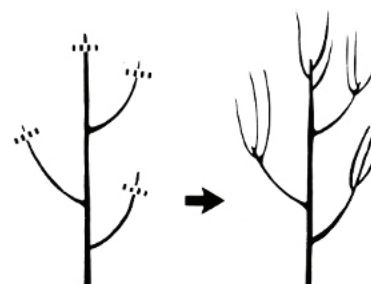


Figure 3. Heading removes a part of a shoot or limb. (from University of Georgia, Bulletin 949)

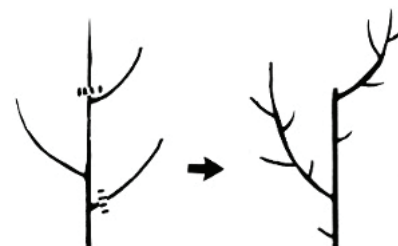


Figure 4. Thinning removes the entire shoot or limb. Note that this is an example of the thinning cut, and it is NOT a demonstration of acceptable tree structure. When thinning out, leave a renewal stub (a couple of inches) if desired to encourage new wood. (University of Georgia, Bulletin 949)

BRANCH TYPES

When pruning, the branches that will produce the worst fruit are removed. Horizontal branches create the best fruiting surface.

- Upright branch = excessively vigorous and only moderately fruitful
- Drooping branch = weak, heavily shaded and sparingly fruitful
- Horizontal branch = moderately vigorous and very fruitful

SIMPLIFIED PRUNING RULES

- **Major cuts:** Remove 2-3 big limbs (greater than 1/3 diameter of leader) using thinning-out cuts. Bottom limbs should be biggest. Leave an inch stub if renewal growth is desired.
- **Shading reduction:** Flatten fruiting plane by removing vigorous upright growth using thinning-out cuts. Thin out limbs to remove crowding and prevent shading. Remove forked ends.
- **Minor cuts:** Single leader to a weak lateral branch to control height. Shorten limbs extending into the tractor row or remove low branches.
- **Detail work:** Remove spurs if needed.

SPECIFIC SITUATIONS

In some cases, a specific approach might be needed to correct a growth habit.

Pruning a Vigorous Tree

- Start with big cuts and finish with small cuts
- On a vigorous tree you want to control the vigor. A few big cuts will stimulate less growth than a lot of small cuts

Pruning a Low-Vigour Tree

- On a weak tree with low vigour you want to encourage vigour. Head-back branches with many small cuts to stimulate growth.

Pruning a Spur-bound Tree

Some apple varieties develop a heavy spur system with many weak spurs and very little shoot growth. Fruit are small and an overabundance of fruit removes resources from tree growth.

- Removing 1/4 to 1/3 of spurs can help to bring the tree back in balance to stimulate shoot growth.

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April 2, 2024