

Training and Pruning Young Cherry Tree



Many cherry orchards are now planted at closer spacings than in the past. Older sweet cherry plantings have trees spaced 24 x 24 ft to 26 x 26 ft, or even 30 x 30 ft (48 to 75 trees/acre). Trees in such plantings were originally trained to an open center system allowing for a very spreading type of tree suitable for hand harvest. Older sour cherry plantings were often 22 x 22 ft to 24 x 24 ft (75 to 90 trees/acre) and trained low and spreading for the same reason.

Machine harvesting has resulted in a rather drastic change in cherry orchard and tree design. Lower limbs should be a minimum of 30 inches above ground level to accommodate trunk-shaking equipment. Low, spreading trees are not desirable. The modified leader tree training system is more adaptable to modern cultural practices and closer tree spacings. Sweet cherry orchards are now commonly

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planted with 110 to 120 trees per acre rather than 50 to 75, and sour cherries at 150 trees per acre rather than 75 to 90.

This publication describes a modified leader training system. This can be a successful training method for either close or wide plant spacings and provides trees well adapted to machine harvest.

Red Tart (Sour) Cherry— Modified Leader System

Obtain nursery trees with a trunk diameter of $\frac{1}{2}$ to $\frac{3}{8}$ of an inch.

Year of Planting: Remove all lateral limbs (whip) at planting time. Nursery limbs seldom, if ever, provide a suitable framework to begin training a sour cherry tree. The lateral limbs produced in the nursery generally have narrow crotch angles where they join the central leader, are too low to be saved for permanent scaffolds, and often are broken or injured in shipping. It is critical to have the lowest permanent

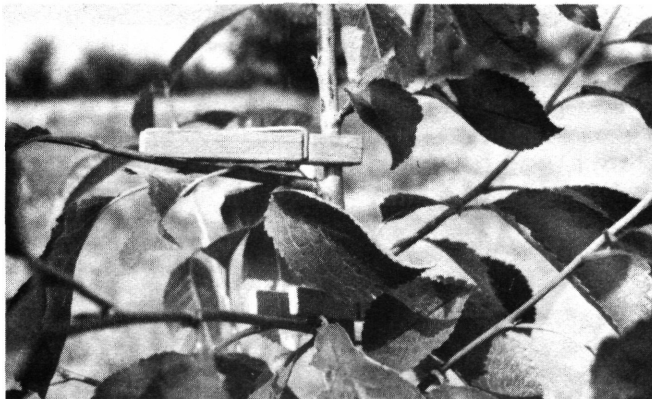


Figure 1. Left: clamp-on clothespins placed on the central leader to force potential scaffolds to grow out at a near 90° angle. Right: round toothpicks placed between the central leader and potential scaffolds to accomplish wide crotch angles. This is done when the side shoot is 3 to 4 inches long, usually in June.

scaffold at least 30 inches above ground level to allow for machine harvest. If the leader is excessively long and small in diameter, it may be headed slightly to a viable, lateral, vegetative bud. Otherwise, no heading is necessary.

During the first summer after planting, when new lateral shoots have reached a length of 3 to 4 inches, clamp-on or spring clothespins may be placed on the central leader directly above selected limbs to force them to grow out at a 90° angle. Round, wooden toothpicks, pointed on both ends, may also be used between the central leader and these short new laterals (Figure 1).

Second Spring: Do not prune young sour cherry trees until the danger of extreme cold temperatures is over. Generally, this is mid-to-late March for 1 to 4 year-old trees in Michigan. Pruning cuts made in mid-winter on these young trees often result in severe winter injury problems.

Choose 4 well-spaced, side-scaffold limbs with wide crotch angles to begin the tree structure. These scaffold limbs should be spaced at least 4 inches apart and in different compass directions so that no limb is above another. The lowest scaffold limb should be at least 30 inches above the ground. Lateral limbs directly above the selected scaffold limbs can be cut to stubs 4 to 6 inches long rather than completely removed. This will help direct growth of the desired scaffolds outward and prevent them from turning upward too rapidly. These stubs can be seen easily and removed the following spring. Completely remove other unwanted laterals.

Remove the uppermost laterals on the tree. These usually become overly vigorous and inhibit the growth of the leader. Remove **any** lateral limb which is equal to the central leader in diameter. Large laterals of a size equal to the leader tend to become dominant and drastically reduce the growth of the central leader.

If at least 4 well-spaced scaffold limbs cannot be

selected, remove all laterals, prune the tree to a whip again and wait until the following year to choose the first scaffolds. **Never** leave just two scaffold limbs on a sour cherry tree. These soon become equal in size to the central leader, usually resulting in an open center, 2 or 3-limbed tree. If the tree must be whiped the second spring, but has some well-placed scaffolds in desirable locations, remove these scaffolds but leave a ¼- to ½-inch stub next to the leader (Figure 2).

There is nearly always a viable vegetative bud at the leader on the underside of each lateral. If that bud is left undisturbed, it will grow a new lateral limb with an excellent wide angle in the same position that same season. This can be chosen as a scaffold limb the following season.

Check the progress of the laterals which break from these vegetative buds during the early summer period. If a bud breaks from the side or top of the stub left in early spring, and the resulting laterals start growing upward at an acute angle, use toothpicks or clamp-on clothespins to force these new laterals outward as described under *Year of Planting*.

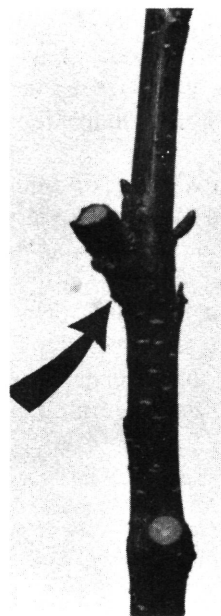


Figure 2. A sour cherry tree which did not have a good selection of scaffolds the second spring and was whiped a second time. Note the ½-inch stubs left with a lateral bud on the underside. This will produce a new lateral limb in the same position.

Third Spring: Choose 2 to 4 additional scaffold limbs for a total of 6 to 8. Again, stub lateral limbs directly above the scaffolds selected to help train the desired scaffolds outward (Figure 3).

Remove all other unwanted laterals including the uppermost limbs which compete severely with the leader. Fine wood growing from scaffold branches or from the mid portion of the central leader need not be removed. These fine branches will never dominate and can be left in for one more season to provide extra leaf surface and help balance tree growth.

Thin out branches on last year's scaffold limbs. The most desirable limbs on last year's scaffolds are those which are basically parallel to the ground. Remove those which grow downward or upward into the tree. **Do not** make bench cuts on scaffold limbs. Bench cuts are those which change the angle of the scaffold limb by removing the terminal in favor of an outward growing lateral. Bench cuts do not change the crotch angle and generally heal poorly, leaving a weak spot which may break later and be an entry point for diseases.

Bench cuts which change the direction of the limb by less than 30 degrees may be successful if the limb diameter is relatively small at the cut, but those over 30 degrees seldom heal properly. Severe cuts also

Figure 3. A well-structured sour cherry tree the spring of the third season. Note that 4 scaffolds were chosen the second spring and 3 more the third spring. Also, note the stubs left above the scaffold limbs. These will be removed the following spring.



greatly invigorate the scaffold where the cut is made and often cause that scaffold to become dominant.

If the tree is whipped the second year, it should have many wide-angled lateral limbs from which to select scaffolds during the third spring. Choose 6 to 8 scaffold limbs, if possible, and again stub unwanted laterals above the scaffolds selected. If 6 to 8 scaffolds (4 to 6 inches apart) cannot be saved, choose the best ones available and plan to finish the tree structure the spring of the fourth year.

Fourth Spring: The basic tree structure with 6 to 8 scaffolds should be complete by the fourth spring after planting. Thin out the main scaffolds. The central leader will be very small at the terminal and may be allowed to become the last scaffold limb. Pay particular attention to the upper portion of the tree. Remove limbs which block light penetration into the lower portions of the tree. Sour cherry will remain quite productive in the inner areas of the tree if sunlight exposure is adequate.

Summer Pruning: Summer pruning on young sour cherry trees can be valuable, but should be done in moderation and only in certain locations and at certain times. It can be advantageous: 1) in late spring or early summer, to remove 2 or 3 very small laterals (current season's growth) near the top of the central leader, thus reducing competition with the leader, and 2) to slow the growth of overly vigorous scaffolds by pinching $\frac{1}{4}$ - to $\frac{1}{2}$ -inch off the terminal growing points during mid-summer. This will slow the growth of the scaffold limb for a short period of time and reduce its competitiveness.

Sweet Cherries— Modified Leader System

Plant nursery trees with trunk diameters of $\frac{1}{2}$ to $\frac{3}{4}$ of an inch. Sweet cherries usually require somewhat less pruning than sour cherries but there are some critical differences in pruning and training methods.

Year of Planting: Remove all lateral limbs (whip) at planting time. Nursery limbs are seldom well placed and generally have poor crotch angles. After the lateral limbs are removed, head the leader to approximately 12 inches above the height where the lowest scaffold is desired. If the leader is not headed at planting time, all the lateral limbs produced the following summer will be near the top of the leader. This will generally be much higher than desired.

Second Spring: Do not prune young sweet cherry trees until the danger of extreme cold temperature is over. Usually, pruning of these young trees should not begin until late March in Michigan.

Choose three or four well-spaced scaffold limbs with wide crotch angles, (6 to 8 inches apart) in different compass directions (Figure 4).

On some trees, it is impossible to select more than two scaffolds properly spaced in the second spring. Keeping just two scaffold limbs is satisfactory on sweet cherry since these limbs do not tend to outgrow the leader, as in sour cherry. Remove any unwanted laterals.

Head the leader to approximately 12 inches above where the next set of scaffold limbs is desired. If the leader is not headed quite severely, the laterals will again be produced near the tip of the leader and lower vegetative buds will not break. Therefore, laterals produced that season will be too far from the lower scaffold limb selections. Without leader heading, the second set of scaffolds will often be 36 inches above the first set. Widely spaced scaffolds are a common problem in young sweet cherry orchards and leader-heading is probably the most satisfactory method of forcing the lower vegetative buds.

Third Spring: Choose 2 to 4 more well-spaced scaffold limbs 6 to 8 inches apart with wide crotch angles and in different compass directions. Never leave a scaffold limb directly above another. Remove unwanted laterals.

Head the leader to approximately 12 inches above where the next set of laterals is desired.

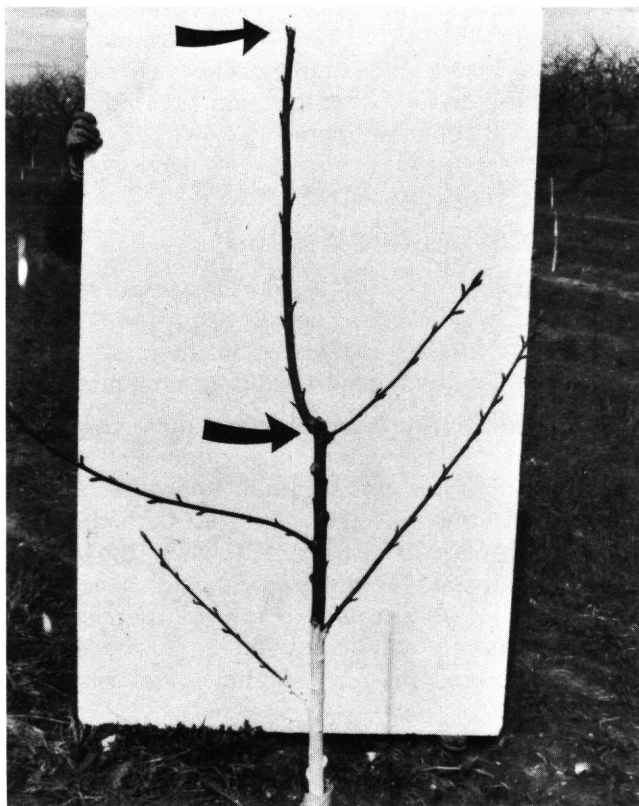


Figure 4. A well-pruned sweet cherry tree the spring of the second year. Note where the leader was headed the first spring and where it was headed again the second spring.



Figure 5. A sweet cherry tree which had attained the desired height and the leader headed the previous year to a weak side lateral. Note that a second bud broke and two side laterals were produced at the top. Also note the spreading effect of this cut.

If 6 or more scaffold limbs can be selected by the third spring, the tree structure is basically built. If not, choose the remaining scaffolds the fourth spring.

If 6 or more well-placed scaffolds have been selected, it is generally advisable to head the leader only slightly and to the weakest side lateral (Figure 5).

This will begin to spread the tree and prevent the leader from becoming too tall, thus making a poor structure for mechanical harvesting. It is necessary to stop the sweet cherry leader at some point or it will continue to grow and produce a very tall, slender tree. This will result in too much transmission of mechanical harvester energy in the top and too little in the lower portions. Once a basic structure of 6 to 8 side scaffold limbs has been selected, subdue the central leader.

Some bench cuts can be made in sweet cherry. Such cuts generally heal quickly and do not weaken the limb. Bench cuts can prevent an overly upright tree structure. However, do not depend on bench cuts to compensate for poor scaffold limb crotch angles. Choosing scaffold limbs with wide crotch angles is important to producing a good tree structure.

Fourth Spring: Choose enough new scaffolds to attain a total of 6 to 8, if not accomplished the previous year.

Head the leader to a weak side lateral as described under *Third Spring*.

Thin side branches from the scaffold limbs chosen in previous years. Again, favor side branching which is parallel to the ground and remove branches which grow downward or upward into the tree.

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