K·STATE
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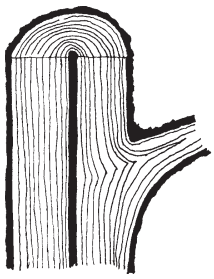


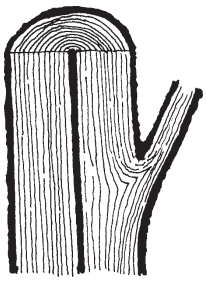


*Figure 12 (left). Lateral branches should be smaller than trunk to form strong wood fiber connection.*
*Figure 13 (right). Narrow angle crotch does not have a strong wood fiber connection.*

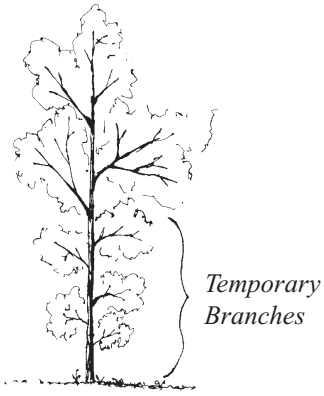



*Figure 15. Temporary branches protecting trunk and helping it grow into a strong support for scaffold branches.*

*Figure 14. A split branch—the result of a narrow angled crotch.*

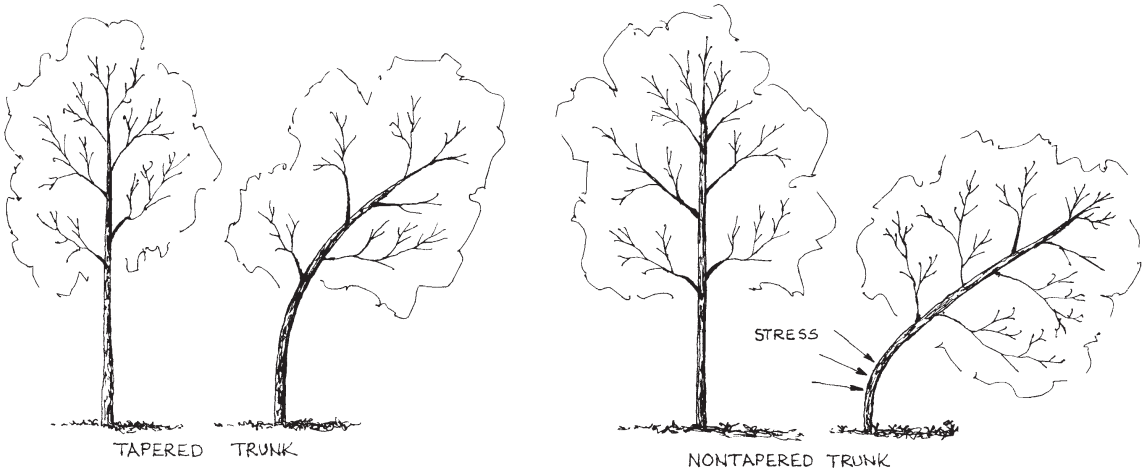



*Figure 16. A well tapered trunk permits uniform distibution of stress making the trunk stronger. A non-tapered trunk may snap under strong wind.*

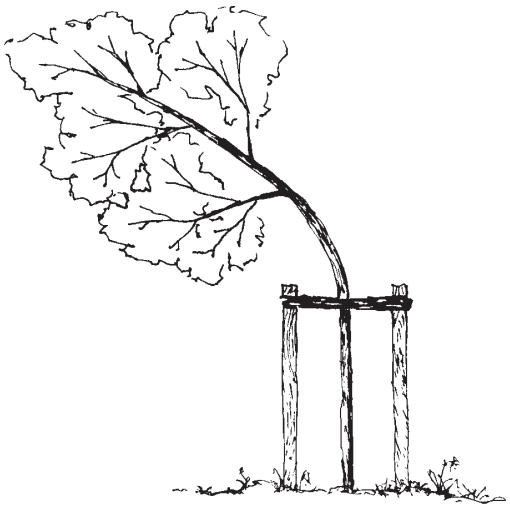


*Figure 17. Support tree as low as possible, allowing the top to bend with the wind.*

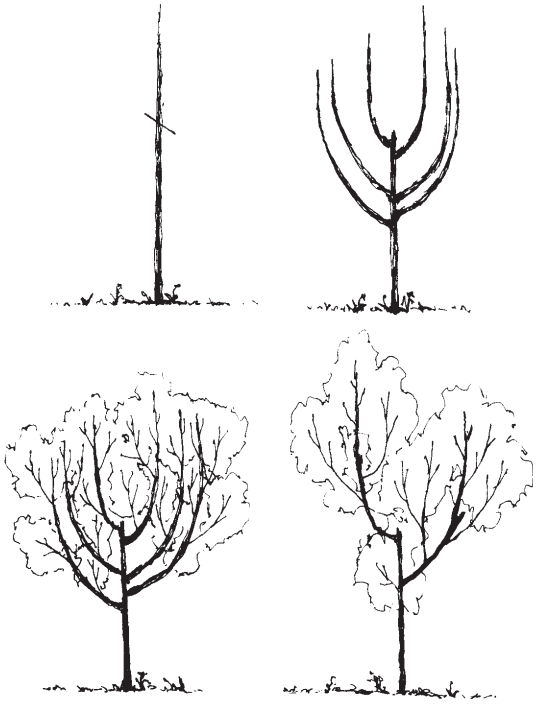


*Figure 19. A young tree headed back in the nursery, resulting in too many branches of which are selected to form scaffold branches while others are pruned out.*

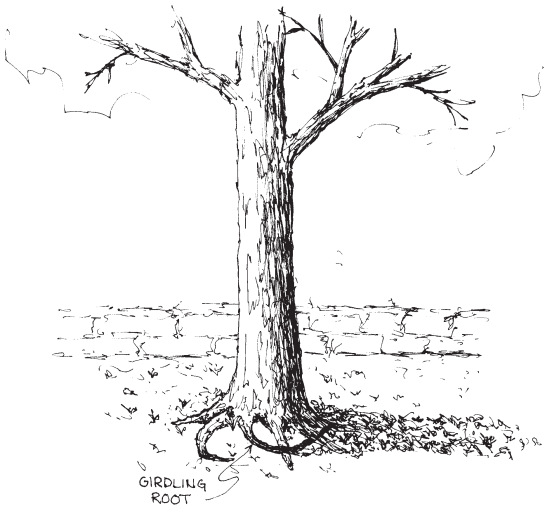



*Figure 18. Remove girdling roots; they can kill a tree or slow its growth.*

*Figure 20. Plant a young tree with the main leader facing the direction of strong summer winds. The southwest winds help branch to straighten up.*

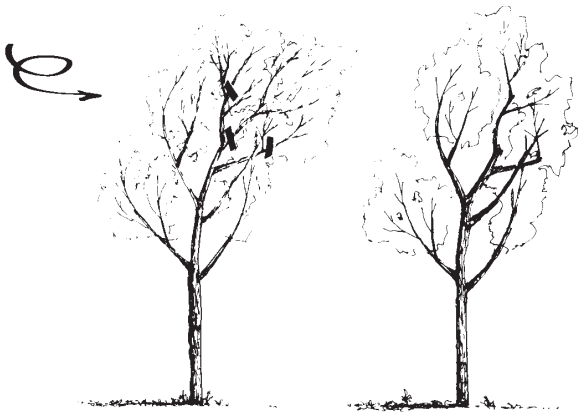


*Figure 21. To keep a near up-right growing leader in wind-swept trees, keep top pruned back to near vertical lateral.*

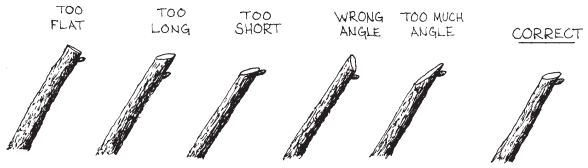



*Figure 23. Incorrect and the one correct pruning cuts. The correct cut should be about ¼ inch above the bud and slightly slanted away from it.*

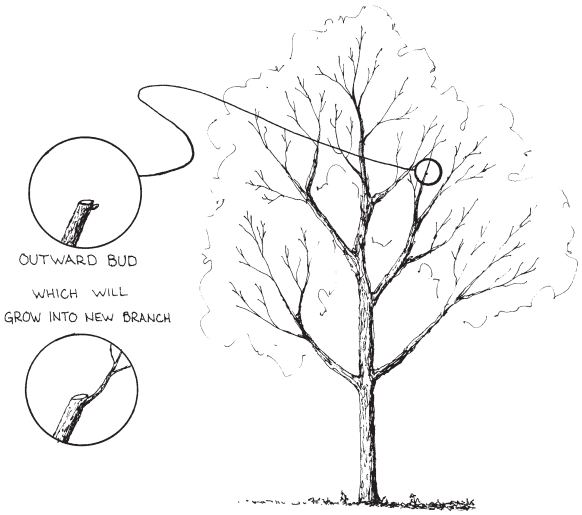



*Figure 23. Prune laterals always back to outward growing buds.*

*Figure 24. Do selective pruning when thinning out. Thinning out produces a more open canopy allowing strong winds to partly blow through crown of tree and do less damage to tree canopy.*

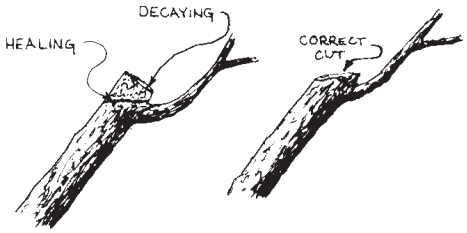



*Figure 25. Wrong pruning cut when leaving a stub—such stubs often start a decay process.*

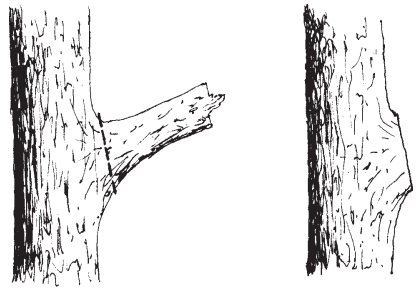


*Figure 28. Make the last cut (#3) so that the lower cut is slightly out from the tree trunk. This results in a smaller wound.*

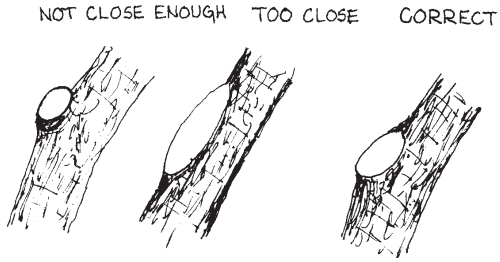



*Figure 29. Large wounds which take longer to heal are the result when a pruning cut is made too close to the trunk. Do not leave a stump by making a pruning cut too far from the trunk. Correct pruning cut.*

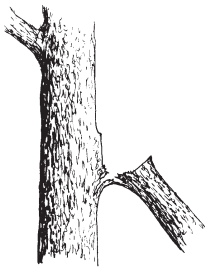


*Figure 26. Bark stripping is the result of improper pruning technique when removing a large branch.*

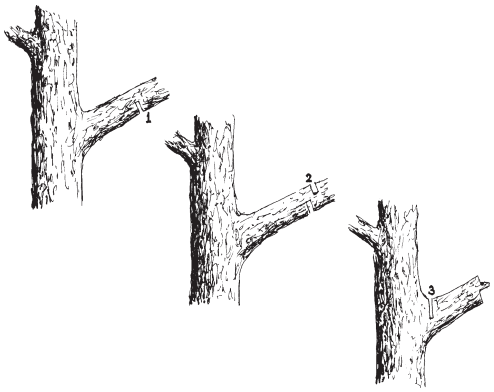



*Figure 27. Correct removeal of large branch through three successsive cuts—resulting in a clean cut. Pruning cuts are made in order of 1-2-3.*

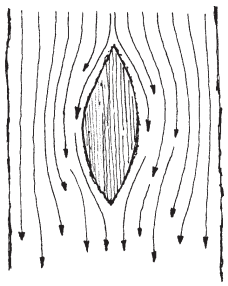
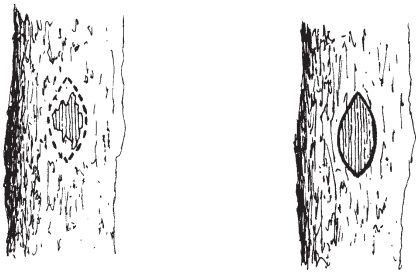


*Figure 30. Diagram showing improved sap flow, resulting in quicker wound healing because of elliptical cut.*



*Figuer 31. Rough wound which was shaped into elliptical form with cambium growth restoring bark cover.*

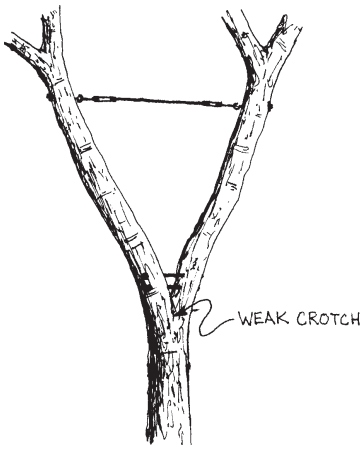



*Figure 32. Location of bolts and cables used to strengthen a weak crotch.*

*Figure 33. Study a narrow V crotch to find the true intersection before removing the limb.*

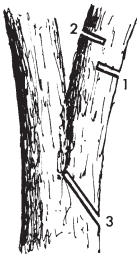



*Figure 34. Pruning cuts are made in order of 1, 2 and 3 to remove a side limb. This prevents splitting.*

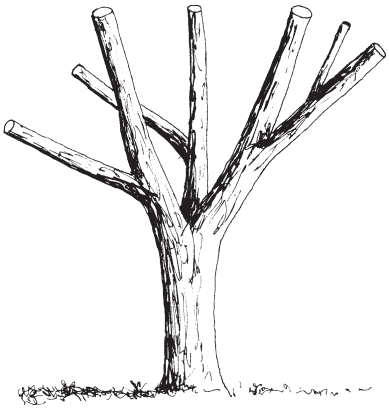


*Figure 35. Stubbing or tree topping is not the way to prune trees. The result is an ugly deformed tree with weak branches. Very often decay start and kills the tree.*

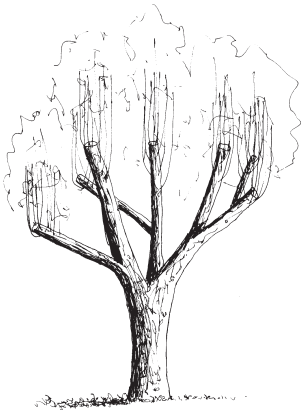


*Figure 36. The result of tree topping—many weakly attached branches—early death of tree.*

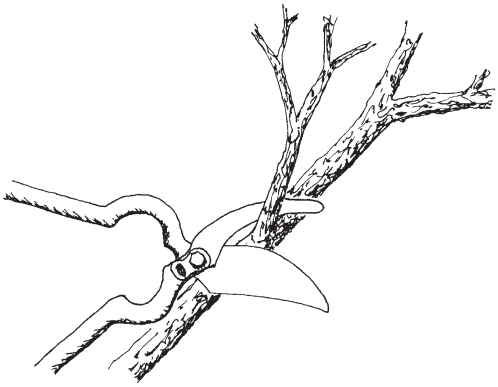


*Figure 38. Curved blade hand pruning shears used upside down to make a very close cut.*

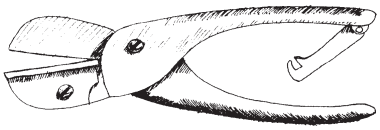


*Figure 39. Hand pruning shears with straight blade.*

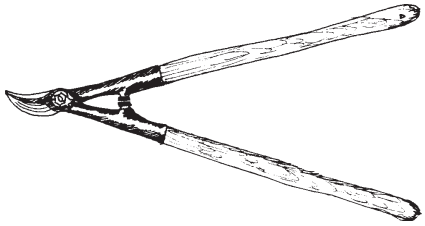


*Figure 40. Lopping shears used for large branches and difficult to reach places.*

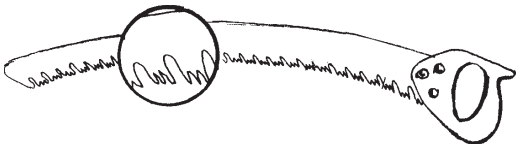


*Figure 41. Pruning saw which saws on the pull stroke.*

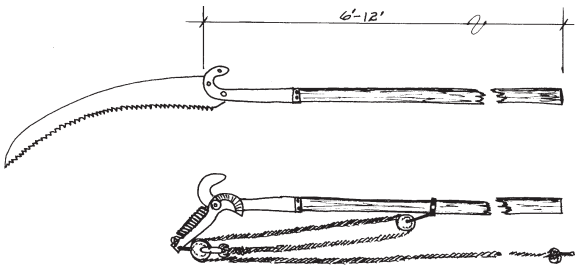



*Figure 42. Pole pruner and saw to prune high hard to reach branches.*

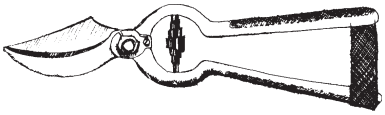
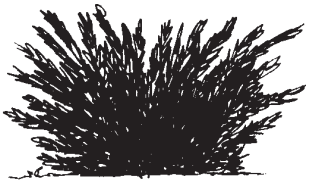


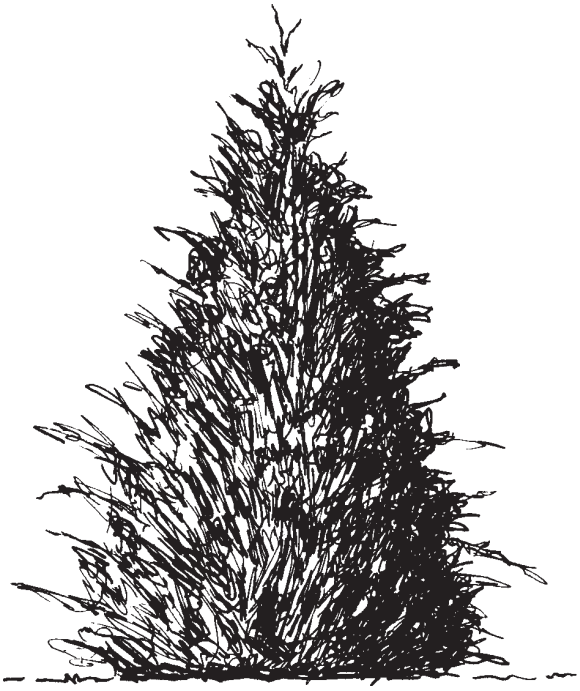
*Figure 37. Hand pruning shears with curved blade.*



*Large*

*Low spreading*

*Medium*



*Upright*

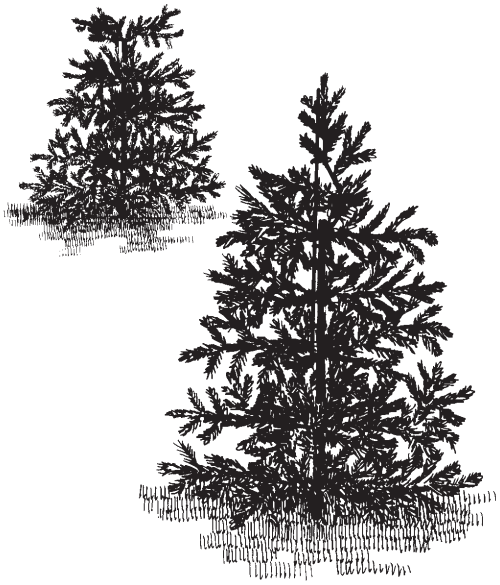


*Figure 43. A fixed side branch developing into a new, main learder.*

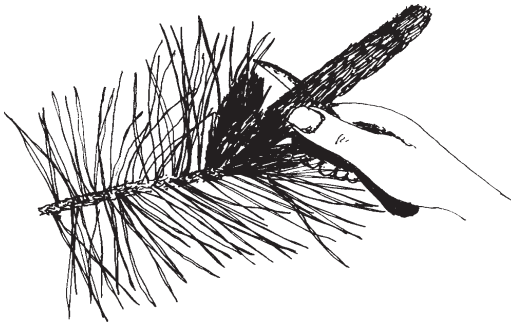


*Figure 44. Remove one-third to one-half of candle after it is fully grown.*

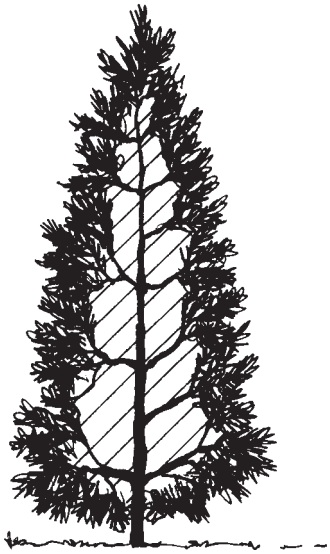


*Figure 46. Dead zone as found in a juniper.*

*Figure 45.*

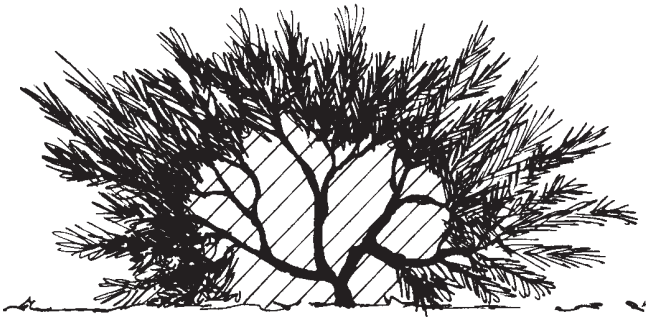


*Figure 47. Dead zone as found in an arborvitae.*

*Figure 49.*

*Figure 48.*

*Figure 50.*

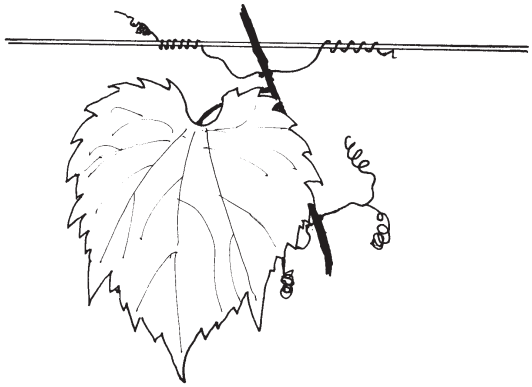


*Figure 51.*

*Figure 52.*

*V-shaped*

*Horizontal weeping*

*Upright—leggy*

*Horizontal oval*

*Low spreading*

*Vertical oval*

*Round*

*Upright*

*Thinning, also called renewal pruning, is the least conspicuous of all pruning and is best applied to plants which are too dense. Thinning is cutting off twigs or side branches where attached to the main stem, Figure 54A, or in case of multi-stem shrub, even removal of the older branches at ground level.*

*Figure 81B. By cutting off most of the inward growing twigs just above an outward growing bud you can influence the remaining twigs to send shoots toward the outside of the shrub and open the shrub up. (Figure 55)*

*Heading back. Heading back is a selective cutting of terminal portion of a branch back to a bud, Figure 56, or another branch and is especially useful for leggy shrubs as it stimulates the development of many smaller buds and shoots lower on the stem, resulting in a denser growth. (Figure 57) Heading back is not topping or shearing a shrub, resulting in an ugly disfigured cube, Figure 58, with undesirable weak new growth mainly along the top of a shrub. (Figure 59)*

*Too extensive heading back may stimulate too much new growth and the danger is that the shrub's natural form is changed.*

*On larger, vigorous shrubs, heading back and thinning can work together to keep the shrub within bounds. Thinning helps open up the center and heading back controls the height of the plant.*

*The shapes of the shrub can be controlled to some extent by the bud's location at the end of the cut. An inward pointing bud will stimulate growths toward the center of the shrub making it a denser plant; an outward growing bud will do the opposite.*

*Rejuvenation. Rejuvenation is the most severe method of pruning shrubs and can be carried out in different degrees on older plants that have become too large or have a large amount of nonflowering wood. The degree of rejuvenation depends on growth form.*

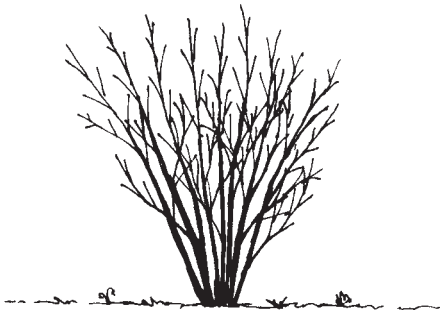


*Figure 53A. Multiple stem.*

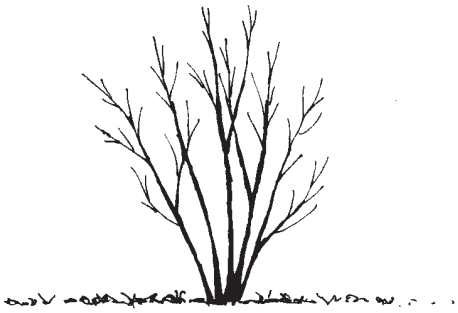


*Figure 54A. Multiple stem after pruning.*

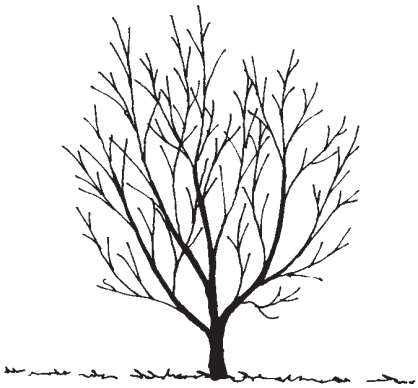


*Figure 53B. Single stem.*

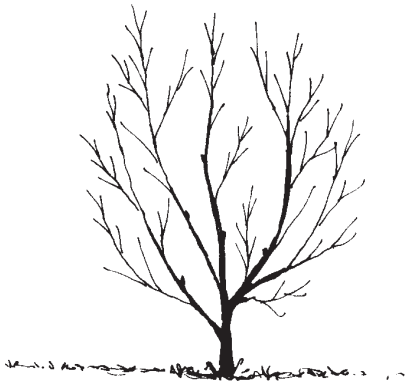


*Figure 54B. Single stem after pruning.*

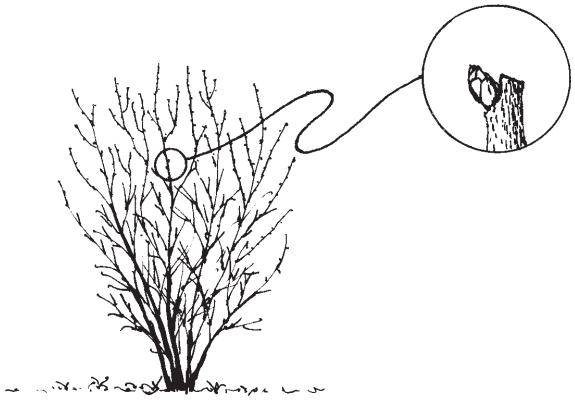


*Figure 55. Prune back to outward growing bud.*

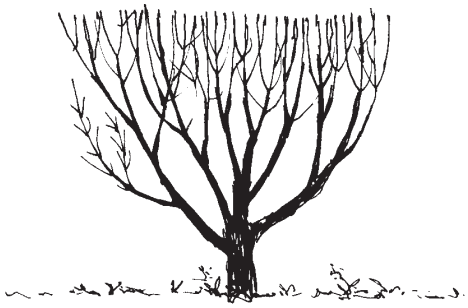


*Figure 58. Never top.*

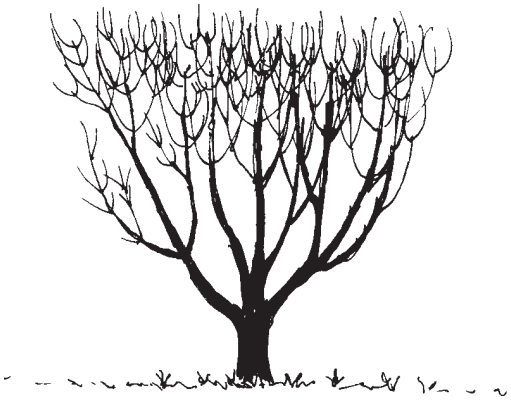


*Figure 59. Topping results in weak and ugly "witches brooming" deforming the shrub's natural appearance.*

*Figure 56. Selective pruning of terminal branches.*

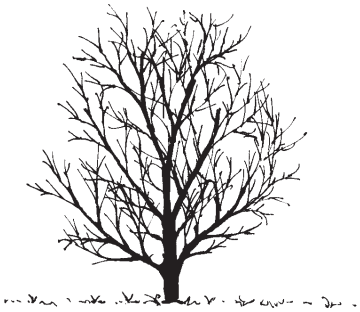


*Figure 57. Resulting in desired, denser growth.*

*Figure 60. On single stem or grafted plants, rejuvenation is carried out by detailed heading back to basic limb framework.*

*Figure 61. On multiple stem shrubs, rejuvenation calls for cutting back all stems to 3- to 5-inch stubs.*

*Figure 62.*

*Figure 63.*

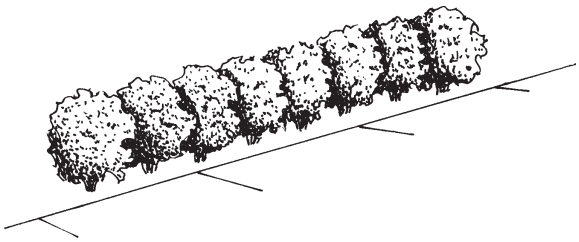


*Figure 64. Informal Hedge*

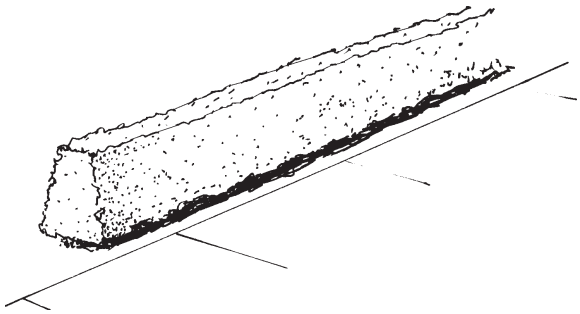


*Figure 65. Formal Hedge*

*Figure 68. Incorrect pruning results in dieback of lower branches.*

*Figure 66. Prune back newly planted hedge shrubs.*

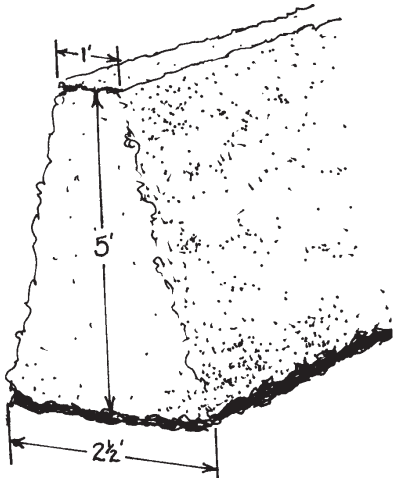
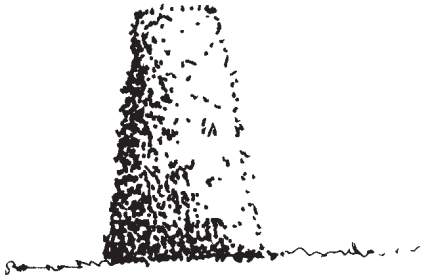



*Figure 67. Correct shaping of formal hedge.*

*Pointed*



*Flat topped*