

Pruning Shrubs

The logo for North Carolina State University, featuring the text "NC STATE UNIVERSITY" in white capital letters on a red rectangular background.

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Pruning involves the selective removal of specific plant parts for the benefit of the entire plant. While pruning usually involves the removal of branches it can include removal of roots, seed pods, or flower buds. Many plants will grow and flower with little pruning provided they are given sufficient room to grow.

Pruning is a gardening practice that is frequently misunderstood and incorrectly practiced. All too often gardeners wait until a plant has out-grown its intended space before they decide to prune. Other gardeners incorrectly view pruning as an annual spring ritual that must be done --- sometimes when it is not needed.

Pruning should be viewed as a regular part of maintenance rather than as a remedial correction of neglected problems. Pruning to maintain plant health includes the elimination of dead, dying, or diseased wood. A dying branch or stub can be an entry point for insects or diseases that could spread to other parts of the plant. When removing diseased wood it is important that the cut be made with a sterile blade into healthy wood. Dip the blades in a disinfectant (one part chlorine bleach to nine parts water or use 70 percent wood alcohol) between each cut or you could spread the disease.

Sometimes we prune to achieve a special effect as is the case with espalier, or tree form plants. Pruning is sometimes undertaken to help a plant recover from transplant shock or from construction damage. Trees are pruned to eliminate low-growing branches that interfere with traffic or to thin the branches to allow more sunlight to reach plants that are growing under them.

Pruning can enhance the flowering display of some plants. As a plant matures it produces more but often smaller flowers. Pruning reduces the amount of wood and so diverts energy into the production of fewer but larger flowers. Pruning-off faded flower clusters of crapemyrtle will stimulate the production of new flower buds and a second round of color. Pruning can be used to produce longer, stronger stems (pussy willow), more colorful stem (red twig dogwood), or more attractive berries (beautyberry).

Response to pruning

A basic understanding of how a plant responds to pruning will help you do a better job. The terminal bud on a shoot produces a hormone (auxin) that inhibits the development of lateral buds along the shoot. When the terminal bud is removed the lateral buds near the cut (6 to 8 inches below) become active and grow. Regrowth on a branch with a 45 to 60 degrees angle will develop farther down the shoot.

When cutting back to a bud, make the cut at a slight angle 1/4 inch above the bud. The angle will allow moisture to flow off the cut. Avoid making the cut at a sharp angle because it will produce a larger wound. When you cut a branch back to the main trunk or to a lateral branch or bud the wound will heal quicker. When you prune leaving a stub the cut is slower to heal.

While pruning is done to reduce the overall size of a plant, it should be remembered that the growth of shoots near the pruning cut are invigorated. Strong shoots should be moderately pruned and weak shoots should be severely pruned. Severely pruning strong shoots will cause vigorous growth.

Correct pruning is the selective removal of branches while maintaining the natural shape of the plant. It is not the same as shearing in which the ends of most, if not all, branches are removed. A good pruning job should not be conspicuous. Before starting consider the natural form of the plant; choose branches that do not fit the natural form for removal. Each plant species has an individuality that distinguishes it from other plants, for example, forsythia has arching branches. It should be pruned to maintain this form and not turned into a round ball or box.

Shearing will increase maintenance; any new growth that occurs will seem out of place and extend beyond the artificial shape that has been created. Pruning to maintain the natural shape is less formal but looks better. New shoot growth tends to blend in and the time between pruning is extended.

Types of pruning

Five basic techniques are used for pruning shrubs: pinching, heading back, thinning, renewal pruning, and shearing. Some plants require more of one method than another, but good pruning is usually a combination of several methods.

Pinching - is the removal of the terminal portion of a succulent, green shoot before it becomes woody and firm. Pinching can greatly reduce the need for more dramatic pruning later on. Whenever (except late summer) you see a shoot becoming excessively long simply pinch or cut the shoot to reduce its length and to promote side branching. Long, vigorous shoots should be cut back into the canopy instead of cut at the outer limits of the existing foliage.

Heading back - involves removing the terminal portion of a woody branch by cutting it back to a healthy bud or branch. Heading back will stimulate shoot growth below the cut thus making the plant more dense. The shape of the plant can be influenced by cutting to inward or outward growing buds. The top bud should be located on the side of the branch that faces the direction new growth is desired. Some plants will have two buds opposite each other on the stem. When such stems are cut, remove one of the buds if you need to control the direction of new growth. If both are allowed to grow, a forked and often weak stem may develop. Repeated heading back with no thinning cuts results in a top heavy plant. Dense top growth reduces sunlight and results in the loss of foliage inside the plant canopy.

Thinning - is the least conspicuous method of pruning and results in a more open plant without stimulating excessive new growth. Considerable growth can be cut without changing the plant's natural appearance or growth habit. With thinning cuts a branch is cut off at its point of origin from the parent stem, to a lateral side branch, to the "Y" of a branch junction, or at ground level. A good rule-of-thumb is to prune to a lateral that is one-third the diameter of the branch being removed. Thin out the oldest and tallest stems first,

allowing vigorous side branch development. This method of pruning is best done with pruning shears, loppers, or a saw --- not hedge shears. Plants pruned by thinning include crapemyrtle, magnolia, viburnums, spireas, smoketree, and lilac. Repeated thinning with no heading back results in plants with long spindly branches. The entire plant may take on a straggly look.

Renewal pruning (rejuvenation) - involves removing the oldest branches of a shrub by pruning them near the ground, leaving only the younger, more vigorous branches which may also be cut back. Small stems (less than pencil size) should be removed. Plants pruned by renewal include abelia, deutzia, forsythia, mockorange, spirea, and weigela.

A variation of renewal pruning involves cutting all branches back to a predetermined height each year. Butterfly bush is often pruned back to woody framework. With time the framework becomes congested and will require some slight thinning. Yellow and red twig dogwood and beautyberry are severely pruned almost to the ground each year to promote the growth of more colorful twigs or berries.

Shearing - involves cutting the terminal of most shoots with shearing or hedge clippers. This method should not be used on foundation plants but should be restricted to creating formal hedges. Shearing destroys the natural shape of the plant. It causes a thick profusion of growth on the exterior of the plant that excludes light from entering the center of the plant (Figure 15-30). Foliage on the interior of the plant dies. The natural renewal growth from within the plant is prevented.

Time of pruning

Light corrective pruning can be done any time of the year. Occasional, light pruning will reduce the need for severe pruning which might weaken the plant and reduce its natural beauty. When severe pruning becomes necessary it should be undertaken in late winter to early spring. Pruning in late summer should be limited since new growth may not have time to mature before cold weather occurs.

Woody plants heal pruning cuts by producing rolls of callus that gradually grow over the wound. Internally they compartmentalize or wall-off the damaged tissue from healthy wood. These responses to wounding occur more rapidly just prior to the onset of new growth in the spring and just after maximum leaf expansion in June. The time of pruning will also affect the amount of new growth produced. Plants respond to late winter and early spring pruning by producing vigorous growth to replace the removed wood. When pruned during the summer only a limited amount of new growth is produced in response to pruning.

Susceptibility to cold weather is increased after pruning. Late summer pruning will often promote new growth that may not have time to become conditioned for cold weather. Wood around winter pruned cuts is more susceptible to desiccation.

The time of pruning should be based on when a plant flowers. Spring-flowering (before May) shrubs such as forsythia, deutzia, lilac, viburnum, mock-orange, and spirea flower on buds formed the previous summer or fall. If these shrubs are pruned during late summer, fall, or winter many of the flower buds will be removed. To ensure maximum flowering,

these shrubs should be pruned as soon as possible after flowers fade in the spring. Little or no pruning should be done after the Fourth of July.

Summer-flowering (May or later) shrubs flower on new growth produced in the current growing season. They should be pruned before new growth begins in spring. Summer- and fall-flowering shrubs include abelia, beautyberry, butterfly bush, Rose of Sharon, crepemyrtle, and summersweet. Hydrangeas are an exception to the rule. They are summer bloomers but should be pruned immediately after flowering.

Broadleaf evergreens

The term broadleaf evergreen is somewhat misleading since it includes evergreens with large leaves such as aucuba, but also includes evergreens with small leaves such as boxwood, Japanese hollies, and pyracantha. The term broadleaf is used to include all evergreens except conifers which have needle or scalelike leaves.

General maintenance - Most broadleaf evergreens require a limited amount of pruning on a very selective basis. Generally, pruning can be done whenever it is convenient, but the best time is early spring. Envision the natural plant shape and selectively cut back out-of-place branches. A compact plant results when branches are pruned back to a lateral within the plant canopy. This will also hide the stub and extend the time between prunings. Some plant, such as azalea and abelia, will produce long, vigorous shoots that extend well beyond the natural canopy and well above a lateral branch. These should be cut back severely within the canopy; try to leave a few leaves on the stem. When needed, moderate to heavy pruning should be done in late winter or early spring before new growth begins.

Evergreens that flower in early spring should not undergo moderate or severe pruning in late summer, fall, or winter, otherwise the number of flowers will be reduced. Wait until immediately after they finish flowering. Plants, such as pyracantha and hollies, produce flowers and berries on growth from the previous season. Light pruning over several years is recommended since severe pruning will reduce or eliminate berry production. Select only those branches that are most out-of-bounds for removal. Light pruning of new growth that hides pyracantha berries can be made in late spring. Be careful not to remove all of the new growth or berry production will be reduced or eliminated the following year.

Mahonia and nandina plants sometimes develop leggy branches with foliage only at the top. These may be removed at ground level or at any height desired. New shoots will develop just below the cut. The best time to prune is after berries drop in the spring. Usually, only a few of the tallest and oldest branches should be cut back to achieve a layered look. For multi-stemmed plants, such as leucothoe, completely remove a few of the oldest branches to the ground each year for two to three years.

Boxwood is best pruned by cutting only the tips of stems. The center of older plants often have little or no green foliage. Avoid severe pruning if possible, since the plants are slow to recover. If severe pruning becomes necessary do so over a period of several years.

Traditionally it has been recommended that truss-forming broadleaf evergreens, such as rhododendron and mountain laurel, should be deadheaded. Experts differ on the importance

of this practice. Some claim that allowing the seed capsules to develop can appreciably reduce flower and shoot development the following year. If you plan to deadhead simply snap the faded flower truss with your fingers while holding the branch with your other hand. This should be done as soon as flowers fade. Use care to prevent damaging the new shoots that form directly below the flower cluster.

Severe pruning - Sometimes evergreens become too large for their location and severe pruning is required. Healthy, broadleaf evergreens can be successfully rejuvenated if severely pruned in late winter or early spring just before new growth begins. Over-grown shrubs, such as hollies, ligustrum, camellia, and mountain laurel, can be cut back to bare branches 2 to 4 feet (or lower) from the ground. The plant should recover in two to three years. Recovery depends on the health of the plant and cultural practices such as fertilization, mulching, watering, and insect and disease control.

New growth at first may seem slow because dormant buds must become active before growth can occur. By mid-summer some of the new shoots may be excessively vigorous and should be thinned and headed back when they are 6 to 12 inches long.

Narrowleaf evergreens (conifers)

General maintenance - Narrowleaf evergreens are plants that have needles such as juniper, pine, cedar, spruce, and yew. Although some dwarf forms are available most cultivars require some pruning to control size, shape, and density. Maintenance pruning should be done to enhance the natural shape of the plant. The timing of selective pruning is less critical for narrowleaf evergreens since they are normally grown for their foliage and not for their flowers. They can be pruned in the winter and used for holiday decorations or pruned in early spring before new growth starts. A second light pruning (thinning and heading) is often done in late June to early July after new growth is completed. Long out-of-scale branches should be cut to a lateral or just above a vigorous side shoot on two- or three-year-old wood. Start at the top of the plant and work down removing branches that extend out and over lower shorter branches. Do not cut all branches back to the same length or the natural shape of the plant will be lost. Make pruning cuts so they will be hidden by an overlapping branch.

Many conifers, such as arborvitae, develop an area on the inside of the plant canopy that has little or no foliage. Green foliage should remain on branches that are cut back. Avoid cutting back to bare branches --- they seldom are able to develop new growth. Yews are the easiest conifer to prune. New growth will occur wherever cuts are made.

Pines are unique --- buds for new growth occurs only on branch terminals. Pruning should be back to a branch or to the main trunk. An exception to this rule is in the spring when new shoots, which look like candles, develop. When the "candle" has extended about to its full length and the needles are still soft, remove about one-half the length of the candle (Figure 15-35).

Severe pruning - Narrowleaf evergreens are less tolerant of severe pruning than broadleaf evergreens. Most narrowleaf evergreens do not have dormant buds on old wood. Heavy pruning can kill most narrowleaf evergreens. If narrowleaf plants become too large for their

location its best to remove them and replant.

Deciduous shrubs

General maintenance - Small branches that do not conform to the natural shape can be removed as needed. Deciduous plants are normally grown for their flower display. The best flowers are produced on vigorous new shoots while older branches produce few or no flowers. Removal of the oldest branches can be achieved by making thinning and heading cuts. Plants vary in the frequency older branches should be removed. Forsythia should be pruned annually while viburnum and witch hazel may not need this type of pruning more than once every five to six years.

Severe pruning- Older shrubs that have out grown their location may need more severe pruning to reduce plant size. If they are healthy and receive adequate sunlight they should respond to renewal pruning. Pruning all the branches at or near the ground is the simplest procedure. An excessive number of new upright shoots may develop from the base by mid-summer. After these shoots have reached their full length, some of the shoots should be removed and some should be headed back. Prune to outward growing buds so the inner portion of the plant will not become overly dense.

An alternative is to selectively remove up to 50 percent of the branches at the base. This would include the removal of older, unproductive wood, inward growing branches, and any other growth that detracts from the natural form of the plant. Any extremely vigorous, unbranched suckers also would be removed. Examine the remaining branches and head back those that detract from the intended size or appearance. By mid-summer, new shoots should have developed. Some of the new basal shoots should be removed. A less dramatic method is to annually remove one-fourth to one-third of the oldest branches for several years until all of the old branches are removed. This method will also require the removal of excessive basal shoots in mid-summer.

Hedges

Pruning hedge plants should begin soon after they are transplanted to ensure they do not become leggy and that branches go all the way to the ground. A dense hedge must be developed slowly. Never try to make a hedge reach the desired height in a single season or it will be thin and open at the base. Plants such as privet or barberry need severe pruning during the first two years to make them bushy.

Subsequent pruning depends on the formality of the hedge. Formal hedges are often sheared in the spring after the main flush of growth has fully elongated. Since any new growth that occurs will appear out of place, numerous shearings are required through out the growing season. An informal hedge is usually pruned only one or two times per year. A significant pruning is done in late winter to early spring before new growth begins. A follow-up pruning is usually done in mid-summer. Informal hedges should be allowed to grow following the natural shape of the plant but conforming to the size and shape of the desired hedge. It is important that the top of the hedge be narrower than its base or the upper branches will shade out the lower branches.

Root pruning

Root pruning is sometimes used to force a vigorously growing fruit tree, wisteria vine, or dogwood to develop flower buds, or to slow the growth of an overly vigorous plant. Refer to the section on transplanting native trees for details.

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