



Pruning Ornamental Shrubs

In a single motion pruning demonstrates both the art and science of horticulture. Perhaps that's why so many homeowners get nervous and postpone or ignore the task. Understanding how plants grow, why pruning is necessary, and which tools to use can remove the mystery surrounding this routine practice.

Reasons for Pruning

Pruning is the selective removal of specific plant parts for the benefit of the whole plant. Pruning is not a way to compensate for inappropriate plant placement or long-term neglect of a plant.

The reasons for pruning can be grouped into four categories: training a plant; maintaining plant health; improving the quality of flowers, fruit, and stems; and restricting growth.

Training a Plant

Young, vigorously growing shrubs benefit from regular pruning. The goal at this stage is to establish the overall framework of the shrub and enhance its natural form so it matures into a structurally sound specimen. Shrubs planted in suitable growing locations should require less pruning as they mature.

Maintaining Plant Health

Removing dead, dying, or diseased branches helps promote plant health. Pruning diseased wood often requires cutting into healthy tissue beyond the

infection. If you cut into infected tissue it may be necessary to sanitize the pruning tool with alcohol or a mild bleach solution to prevent transferring the disease to another area of that plant, or to a different plant. Thinning out the canopy of dense shrubs to allow for light penetration and improved air circulation also can help prevent disease problems from developing.

Improving the Quality of Flowers, Fruit, and Stems

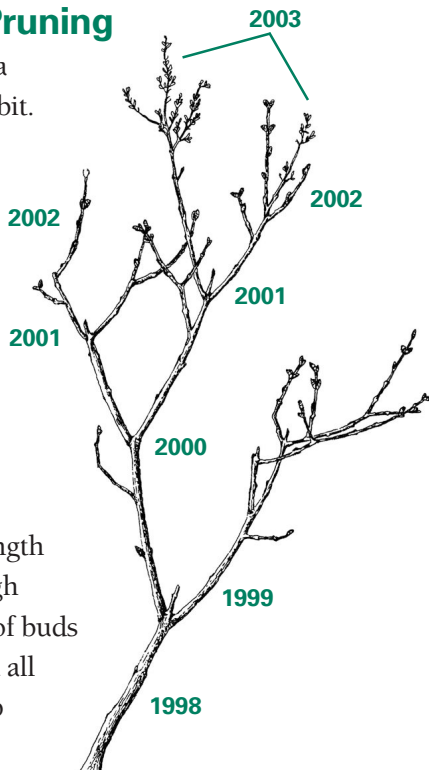
Selectively removing some of the flower-bearing stems can enhance the overall size and quality of flowers and fruit. On flowering shrubs knowing where the flowers are produced (current year's growth or last year's growth) will help you determine what to prune. Pruning at the wrong time will drastically reduce or completely eliminate flowering for the season. Some deciduous shrubs—such as redbud dogwood—have attractive stems or bark. The most vibrant color is produced on young vigorous stems, so pruning these shrubs hard (removing a large number of twigs to the ground) produces more new growth which will have the best color.

Restricting Growth

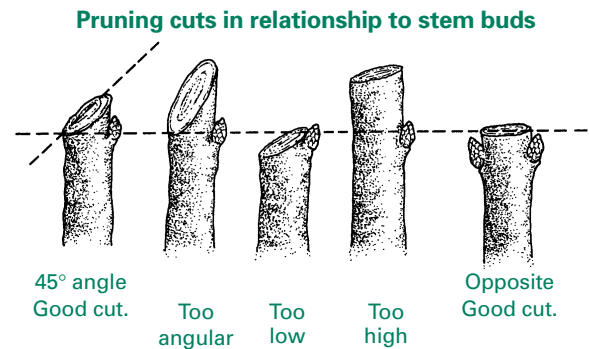
If a shrub consistently needs excessive pruning in order to keep it in bounds, consider removing it and replacing it with a more appropriate plant. A neglected or poorly maintained shrub will require extensive pruning to get it back in shape. Shrubs grown as an espalier or formal hedge also will require extensive annual pruning.

Principles of Pruning

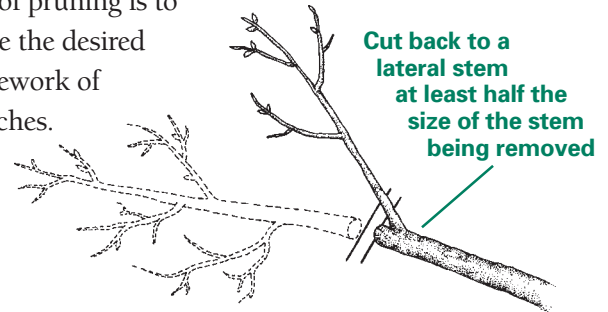
Woody plants have a definable growth habit. Knowing the parts of a branch will help you make correct pruning cuts. In woody plants the largest buds are located at the branch tips with numerous, smaller, lateral buds located along the length of the stem. Although there are a number of buds on a given stem, not all of them will develop into new shoots.



Pruning back to a new growing point is essential to good pruning. Generally a vegetative bud is visible along the stem and is a good point to cut back to.

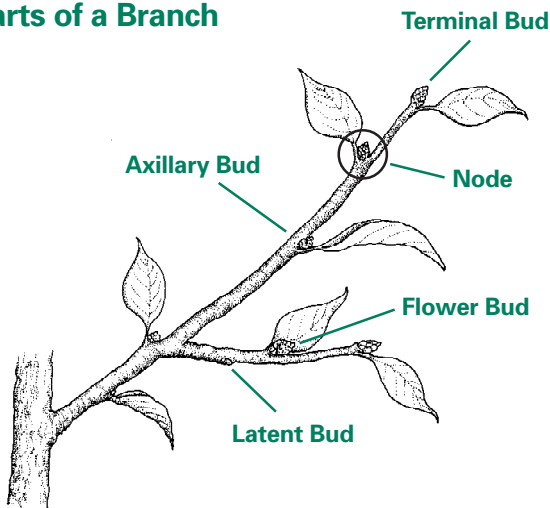


On stems that grow upward, make a slanting cut at a 45° angle. This will allow water to run off the pruning cut and expedites wound closure. In cases of more extensive pruning, cut back to a lateral stem that is at least half the size of the stem being removed. Also keep in mind the direction you want the new stem to grow and select for a bud that faces that direction. A major goal of pruning is to create the desired framework of branches.



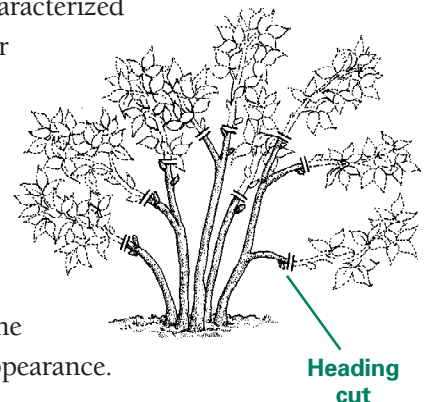
The types of pruning cuts most often made can be classified as 'heading cuts' or 'thinning cuts'. Each type of cut has a different effect on plant growth.

Parts of a Branch

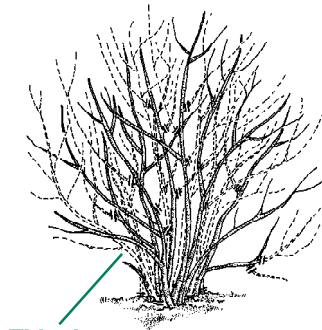


Woody plants exhibit a growth characteristic called apical dominance. The high concentration of hormones located at the shoot tips inhibits growth of lateral buds below the tip and reduces growth of lower shoots. Removing the shoot tip encourages lateral buds further down the stem to develop with the top most remaining bud growing most vigorously. Removing material in one area stimulates growth in another.

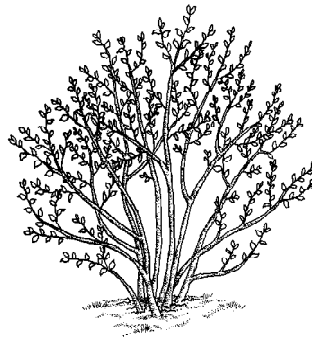
Heading cuts are characterized by cutting a shoot or limb back to a bud or existing shoot. Heading cuts promote branching and increase the number of new shoots giving the plant a "filled in" appearance.



Thinning cuts involve removing a stem or branch completely. This opens up the canopy and increases light penetration and air circulation. The stem or branch is removed at one of the following points: its point of origin on the parent stem; a lateral side branch; or the 'Y' of a branch junction. In cases of rejuvenation pruning, the branch is removed at ground level. Thinning cuts can be used to reduce the overall size of the plant without significantly changing its natural form.



Thinning cut



After the pruning cuts are made the plant produces callus tissue around the wound margin that will ultimately cover the wound. "Wound dressing" products are not recommended because research on their effectiveness has been inconclusive.

Rapid wound closure after a pruning cut is important to the plant's health. Pruning in early spring enhances the plant's chance to recover because the quickest closure occurs after leaf expansion in the spring and just prior to the onset of stem elongation.

Pruning roses in late summer is not recommended. It stimulates new growth that will not have time to harden off and as a result will be susceptible to winter injury.

Pruning Terms

Apex—The tip of a shoot

Apical dominance—The influence a growing shoot tip has on buds and shoots below it. The high concentration of hormones located at the shoot tips inhibits growth of lateral buds below the tip and reduces growth of lower shoots. When you remove the shoot tip, lateral buds further down the stem begin to develop, and the top most remaining bud will grow most vigorously.

Bud—An undeveloped shoot, leaf or flower or a combination of leaves and flowers. Buds form on the sides or ends of shoots and in the angle formed where a leaf is attached to a shoot.



Heading cut—Removing part of a shoot or limb back to a bud.

Rejuvenation pruning—Method of renovation for overgrown shrubs; each year for three years one-third of the oldest stems are cut back to the ground. See page 6.

Renovation pruning—Drastic method of treating overgrown shrubs by removing all stems back to about 6 inches from ground level. See page 6.

Root sucker—A shoot that arises from the root system.

Shoot—The growth of a branch for one season. A ring of small ridges (the bud scale scars) on a branch mark the start of a season's growth.

Thinning cut—Removing an entire shoot or limb to the point where it originates.



Choosing and Caring for Pruning Tools

To extend the life of pruning tools, use the right tool for a job and avoid twisting or straining it.

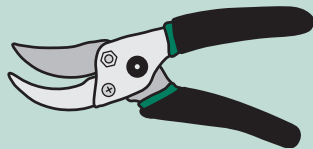
Clean and oil tools regularly by wiping an oily cloth on blades and other surfaces. Keep cutting edges sharp by regularly using an oilstone. Wooden handles should be varnished or regularly treated with linseed oil to keep them from cracking or splintering.



Hand Pruning Shears

Stems up to half inch in diameter can be pruned with hand shears. Hand shears are available in either a scissor-action or anvil-cut type.

Scissor-action shears have a thin, sharp blade that slides closely past a thicker sharp blade. These shears make a clean, close cut. Anvil type shears have a sharp blade that cuts against a broad, flat blade. Cuts with this type of shear tend to be more ragged.



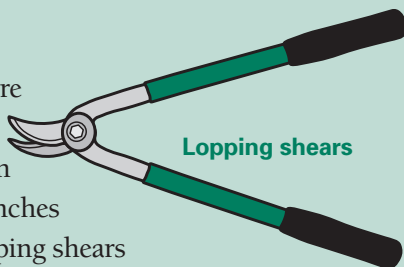
Scissor-action



Anvil-cut

Lopping Shears

Lopping shears are suitable to use on stems between half inch and 2 inches in diameter. Lopping shears have long handles and are operated with two hands.



Lopping shears

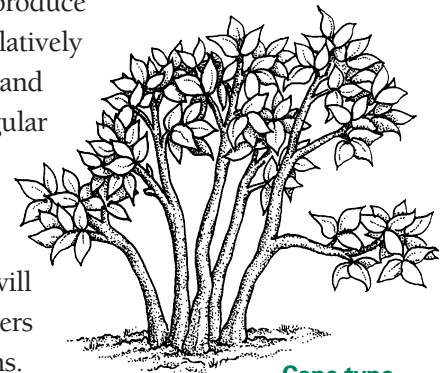
Pruning Guidelines for Specific Shrub Types

Deciduous Shrubs

Deciduous shrubs make up the bulk of most landscapes. Consider the growth habit and flowering time before pruning. Routine pruning tasks include removing dead, diseased, or damaged growth, and deadheading. In some cases a shrub may have a stem that is reverting back to its natural form (i.e. losing its variegation). These stems should be removed.

Pruning Decisions Based on Growth Habit

Cane-type shrubs produce numerous, long, relatively unbranched stems and respond well to regular thinning. The new, vigorous shoots that develop as a result of thinning will produce more flowers than the older stems.

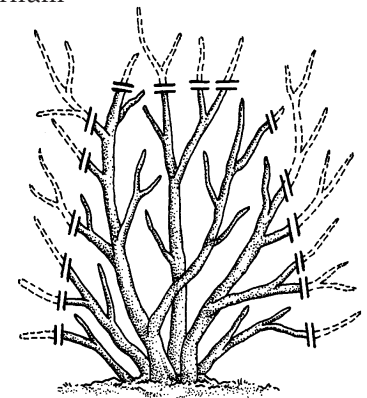


Cane type

Examples

- Deutzia* species, Deutzia
- Forsythia* species, Forsythia
- Kolkwitzia amabilis*, Beautybush
- Philadelphus* species, Mockorange
- Rosa* species, Rose
- Viburnum* species, Viburnum

Shrubs that have a permanent framework-type growth habit benefit from selective heading cuts to enhance the plant's overall shape.



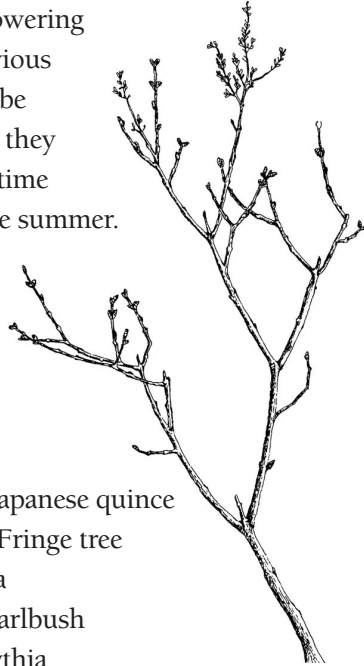
Framework type

Examples

- Rhododendron* species,
- Rhododendron and azalea
- Hamamelis* species, Witch hazel

Pruning Decisions Based on Time of Flowering

The majority of spring-flowering shrubs bloom on the previous year's growth and should be pruned immediately after they bloom to allow adequate time for new growth during the summer. Flower buds for the following year will develop on this new growth.



Examples

Chaenomeles japonica, Japanese quince
Chionanthus virginicus, Fringe tree
Deutzia species, Deutzia
Exochorda racemosa, Pearlbush
Forsythia species, Forsythia
Lonicera species, Honeysuckle
Philadelphus species, Mockorange
Rosa species, Rambling rose
Spiraea species, Spring-blooming spirea
Syringa species, Lilac
Viburnum species, Viburnum
Weigela florida, Weigela

Shrubs that bloom in midsummer or fall do so from buds that form on the current season's growth. These species should be pruned in late winter or early spring to promote vigorous growth early in the summer.

Examples

Hydrangea arborescens, Smooth hydrangea
Hydrangea paniculata, Panicle hydrangea
Potentilla fruticosa, Potentilla
Rosa species, Hybrid teas, Grandiflora, Floribunda
Spiraea bumalda, Bumald spirea
Spiraea japonica, Japanese spirea

Shrubs that are grown predominantly for their attractive bark, fruit, or fall leaf color should be pruned in late winter or early spring.

Examples

Cornus species, Redtwig and Yellowtwig dogwood
Euonymus alatus, Burning bush

Pole Pruner

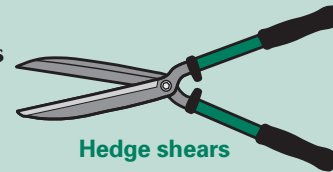
Pole pruners have a hooked blade above and a cutting blade beneath. The blades are on a 5- to 6-foot long pole and are operated by pulling on a long piece of cord. The pole can be made of various materials such as plastic, fiberglass, aluminum or wood. Fiberglass and plastic poles are good choices because they tend to be lightweight and don't conduct electricity.

Pole pruner

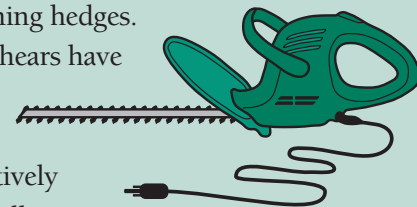


Hedge Shears

Manual and power shears are available for trimming hedges. Manual shears have long, flat blades with relatively short handles and are good for small jobs. Electric shears are a good choice for larger hedges.



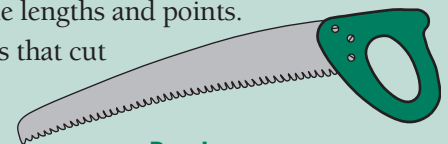
Hedge shears



Electric hedge shears

Saws

A number of pruning saws are available. These saws come with either curved or straight blades and of variable lengths and points. Curved blades that cut on the draw stroke are easy to use.



Pruning saw

Fineness of the cutting edge is measured in points (teeth per inch). Most pruning saws are in 5½ to 6 points. Blades with 8 or more points are suitable for delicate pruning on small limbs, while a 4½-point blade is good for thicker (2½- to 3-inch diameter) stems. Bow saws are best used when the plant is heavily branched so other branches don't get in the way when pruning.



Bow saw

Overgrown Shrubs

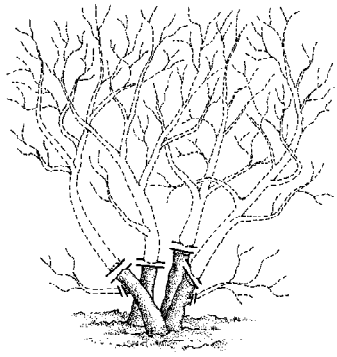
Drastic pruning can be used to rejuvenate some overgrown shrubs. Renovation involves cutting all stems back to about six inches from the ground.

As the new stems develop some additional thinning and heading cuts will be necessary to shape the new plant.

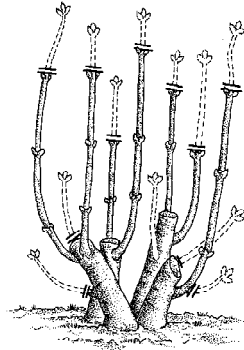
Examples of shrubs that can tolerate severe pruning include

- Berberis* species, Barberry
- Chaenomeles* species, Flowering quince
- Cornus* species, Dogwood
- Forsythia* species, Forsythia
- Kolkwitzia amabilis*, Beautybush
- Ligustrum* species, Privet
- Philadelphus* species, Mockorange
- Rosa* species, Shrub roses
- Spiraea* species, Spirea
- Syringa* species, Lilac

A less drastic approach is to remove one-third of the stems in each of three consecutive years. When doing rejuvenation pruning, start with the oldest and tallest branches and remove them to ground level. Repeat this the following two years. As new stems develop they may need heading to direct the new growth.



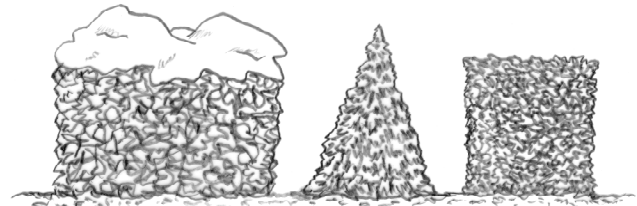
Renovation pruning



Rejuvenation pruning

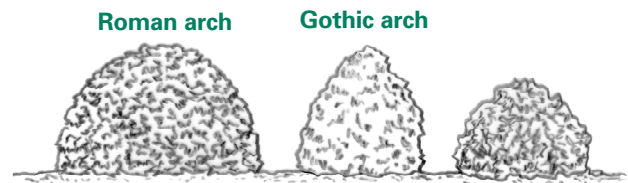
Formal Hedges

Nearly all hedges require regular and careful pruning to keep them healthy and attractive but formal hedges require the most maintenance. By shearing and using careful heading cuts hedges can be pruned into a variety of shapes.



Snow accumulates on broad, flat top

Straight lines require more frequent trimming

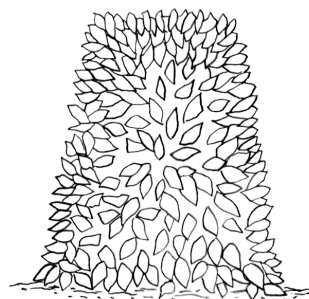


Roman arch

Gothic arch

Peaked and rounded top hinders snow accumulation

The most important goal when pruning a hedge is to allow sunlight to reach all parts of the canopy, including the base of the plant. Hedges that are wider at the top than at the base often have little foliage near the bottom due to lack of light. A better option is a pyramid form which lets light reach the entirety of the hedge.



Good shape—base gets sun



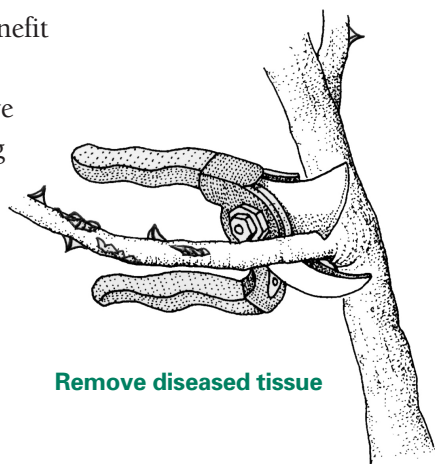
Poor shape—weak growth at base

Good choices for formal hedges include

- Buxus* species, Boxwood
- Ligustrum* species, Privet
- Ribes* species, Currant
- Taxus* species, Yew

Roses

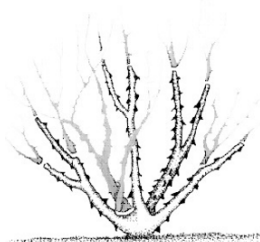
All rose bushes benefit from some type of pruning to improve flowering. Pruning also helps reduce disease problems by improving air circulation or by removing existing diseased tissue, producing a more attractive plant.



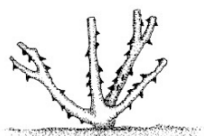
Some roses bloom on the current season's growth, while others bloom on the previous year's growth. Those that bloom on current season growth tend to be repeat bloomers and will bloom almost continuously from early summer until frost. Roses that bloom on the previous year's growth are once-blooming types and have a single flush of blooms in early summer.

Hybrid Tea, Grandiflora, and Floribunda

These roses are repeat bloomers and bloom on current season growth. They require annual pruning in the spring after winter protection is removed. A severe winter may cause extensive dieback on existing canes. In this case, cut the canes back to live tissue which is green and has plump buds. If there is no green tissue, the cane is dead and should be removed completely. If the winter has been less severe, prune canes in early spring before they leaf out, about when the forsythia blooms. Remove damaged or crossing canes and those that are growing toward the interior of the shrub. Select 4 or 5 healthy canes which are well spaced around the plant and cut these back by



Prune annually in the spring



type of rose. Floribundas and hybrid teas should be cut back to 12 to 18 inches. Most grandifloras should be cut back only to 24 inches.

Albas, Damask, Gallica, Moss

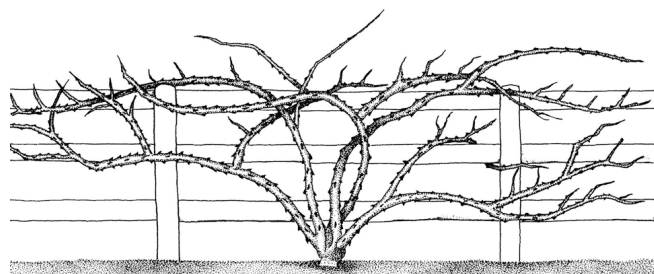
These once-blooming favorites bloom on the previous year's growth and produce a single flush of blooms in early summer. Spring pruning should be limited to removing dead or diseased canes.

Ramblers and Climbers

These roses tend to have a vigorous growth habit and need regular pruning and training to keep them attractive and flowering well. They do best when trained to a trellis, fence, or other support.

Only a limited number of roses in these categories can be successfully grown in Iowa. Some bloom on current season's growth (Example: 'Blaze'). Others bloom on the previous year's growth (Example: 'William Baffin').

The severe winter weather in Iowa usually causes significant dieback of the older canes. Dead or damaged canes should be pruned in the spring. Start by removing all canes that are completely dead; then use selective heading cuts to direct the new growth of the remaining canes. If necessary during the growing season, the vigorous new growth can be shortened and thinned to maintain the desired plant form.



Conifers

For pruning purposes conifers are divided into two types.

Scale-like Foliage and a Random Branch Arrangement

Juniperus species, Juniper

Thuja species, Arborvitae

Conifers in this group can be pruned the same way as flowering shrubs. Heading cuts will encourage dense growth while thinning cuts will help maintain the overall shape of the shrub. New branches will only develop as a result of heading cuts if the branch remaining still has foliage on it.

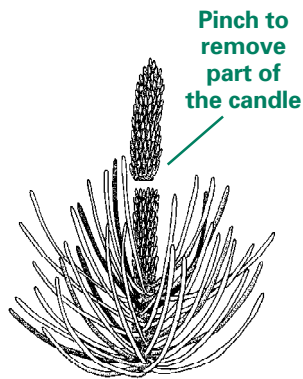
Needle-like Leaves and Whorled Branches

Abies species, Fir

Picea species, Spruce

Pinus species, Pine

This group of conifers can be pruned by removing all or part of the “candle” or new growth. In spring when the light-colored candle is still soft, pinch it with your fingers or prune with hand shears. This is a type of heading cut and will produce denser growth and maintain the overall plant size. Don't make thinning cuts on this type of conifer as it may create unsightly gaps in the branching pattern.



Yews (*Taxus*) have an abundance of buds on both old and new wood. New stems will develop after cut. This group of shrubs can be sheared heavily without permanent damage and lends itself to formal hedges. Prune just before new growth begins in the spring.

File Hort and LA 4

... and justice for all

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For more information

Contact your local Iowa State University Extension office for additional information or copies of the following publications.

Deciduous Shrubs, PM 1943 (\$)

Growing Rhododendrons and Azaleas in Iowa, RG 704

Iowa's Shrubs and Vines, IAN 307 (\$)

Pruning Shade and Flowering Trees, PM 1304

Pruning Trees and Shrubs, SUL 5 (\$)

Roses for the Home, NCR 252 (\$)

Additional information also is available from these Web sites:

ISU Extension publications—
www.extension.iastate.edu/pubs

ISU Forestry Extension—
www.ag.iastate.edu/departments/forestry/ext/ext.html

ISU Horticulture—
www.yardandgarden.extension.iastate.edu

Questions also may be directed to ISU Extension Hortline (515-294-3108), Monday–Friday, 10 a.m.–noon and 1–4:30 p.m.

If you want to learn more about horticulture through training and volunteer work, ask your ISU Extension office for information about the ISU Extension Master Gardener program.

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