

UNIT 27

NARROWLEAF EVERGREENS

OBJECTIVE

To identify and plant narrowleaf evergreens in the landscape.

KEY TERMS

balled and burlapped
bare root
berm
fascicles
heel-in
pot-bound

COMPETENCIES TO DEVELOP

After studying this unit, you should be able to:

- differentiate between the two types of narrowleaf evergreen leaves.
- list four reasons for using narrowleaf evergreens in the landscape.
- describe the primary purpose of a lath house.
- describe the proper fertilizer practices for narrowleaf evergreens.
- demonstrate the proper procedure for planting narrowleaf evergreens.
- calculate fertilizer's three active ingredients of nitrogen, phosphorus, and potassium.

MATERIALS

- two different narrowleaf evergreen trees or tree branches
- several deciduous narrowleaf trees or tree branches
- 5-10-10 fertilizer
- round-point shovel
- nursery spade
- garden hose

NARROWLEAF evergreens have long been popular landscape plants. This may be because they generally remain green year-round, thereby adding color to the landscape when other plants are dormant. Another advantage is that they are adaptable to various soil types and weather conditions.

The leaves of narrowleaf evergreens may be needlelike or scalelike. Pines have needlelike leaves attached to the branch in bundles (known as sheaths or **fascicles**). For example, the white pine has five needles per bundle or sheath. These evergreens carry their needles throughout the year, with old needles dropped in the fall and new needles produced in the spring. Spruces have single needles attached to the branch, which are square, stiff, and sharp.

Narrowleaf evergreens with scalelike leaves have leaves arranged so that each scale overlaps another to form a flat spray. An example of a narrowleaf evergreen with scalelike leaves is the juniper.

Uses

The narrowleaf evergreen has long been a standard choice for foundation plantings because of its year-round green foliage. Figures 27-1 through 27-3 show several narrowleaf evergreens



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FIGURE 27-1 Mugho pine—*Pinus mugo mughus*.



GREEN TIP

Narrowleaf evergreens are excellent resources to provide windbreaks in the micro-environment. For each foot of vertical height of the plant, it will give 7 feet of protection behind the narrowleaf evergreens.

used as part of foundation plantings. Narrowleaf evergreens are also used extensively as boundary plants to accent borderlines of property (Figures 27-4A and B). The narrowleaf evergreen may also be used to screen a view of a less attractive area or to help control air currents. For example, in the winter months, a windbreak of narrowleaf evergreens can cause the temperature on the protected side of the windbreak to be 5 to 10 degrees warmer than on the unprotected side (Figure 27-5).



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FIGURE 27-2 Plume false cypress—*Chamaecyparis pisifera* 'Plumosa.'



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FIGURE 27-3 Hemlock—*Tsuga canadensis*.



GREEN TIP
Go green by using trees to create a sound barrier.

Care

Narrowleaf evergreens are grown in nurseries. They are shipped three different ways: **bare root** (BR), **balled and burlapped** (B&B), or as container stock (C).

Bare root narrowleaf evergreens are shipped while the plants are seedlings. When the seedlings arrive at their destination, the quality of the nursery stock must be maintained, and therefore the seedlings must be handled with care. Until the ground permits planting, the seedlings should be stored in a building that will maintain high humidity and a cool temperature range of between 33 and 40°F (0 and 50°C). The roots must be covered and kept damp with



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FIGURE 27-4A Blue Colorado spruce—*Picea pungens* 'Glauca' (winter).



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FIGURE 27-4B Blue Colorado spruce—*Picea pungens* 'Glauca' (spring).



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FIGURE 27-5 Black Japanese pine—*Pinus thunbergii*.

material such as straw, shingle tow, burlap, or sphagnum moss. Another good storage method is to **heel-in** the seedlings into well-rotted sawdust or soil outside. The roots must be prevented from drying out until they are planted in the ground.

Balled and burlapped narrowleaf evergreens may be moved at almost any time of the year except when the plant has shoots of new growth or when the ground is frozen. The new shoots must be allowed to harden before the plant is moved. If these plants are to be out of the ground for any length of time, it is best to mulch them heavily with well-rotted sawdust, pine bark, peat moss, straw, shingle tow, salt marsh hay, or hardwood bark to retain moisture around the roots. This process is called heel-in.

To maintain healthy plants, narrowleaf evergreens should be watered regularly and stored in a lath house until they are planted on the site. A *lath house* gives protection from the sun by reducing the light available to the plant. This reduces the transpiration rate (water loss) of the plant.

Planting Balled and Burlapped Plants

The prepared hole should be one and one-half to two times as large as the ball of soil around the tree being planted. This allows room to set the tree in the hole and mix peat moss with the soil surrounding the hole. The ball of the tree is set 1 inch above the original soil line, because the tree will settle somewhat in the hole. Remove the burlap, twine, and wires from the top third of the root ball. It is not necessary to pull the burlap out from under the ball, unless burlap made of plastic is used. Plastic will not rot and will restrict root development. Add prepared soil in and around the root ball until it is covered. When the hole is two-thirds filled with soil, fill it to the top with water and let it soak in. Then finish filling the hole with soil. With the remaining soil, form a saucer-like shape (known as a **berm**) around the tree to hold water that will be added later. A berm is used to conserve water and create a healthy, ecological system by managing runoff around the plant root system.

Planting Containerized Trees

Containerized trees are planted in the same way as balled and burlapped trees, except for the following differences.

1. The container is removed from the tree roots. Care must be taken not to break the root ball apart.
2. After the container is removed, check to see if the roots are **pot-bound** (the root ball will be excessively tight). If this has happened, then it is necessary to cut or loosen the roots to encourage growth from the root ball. This procedure stops the circular root growth and allows the roots to make their growth into the soil. If the growth pattern remains circular, the plant growth will be restricted. In severe cases, trees can be killed if this growth pattern is allowed to continue.

Staking

Staking evergreens is important because it gives the tree needed support to allow the root system to become established and to prevent the tree from swaying in the wind. For trees 10 feet or less in height, the stakes should be 5 to 6 feet long

and 1¼ inches square. Stakes should be made of wood that is capable of standing in the ground for at least 2 years.

To stake a tree, drive two stakes into the ground, with one of the stakes into the prevailing wind side of the tree. Drive the other stake directly opposite the first stake. Using a pliable 12-or 14-gauge soft steel wire and piece of garden hose or commercially prepared material (about 1 foot long), slip the wire through the hole in the hose or commercial sleeve and place it around the trunk of the tree about halfway up the tree. Pull the two ends of the wire around the first stake, making sure the section inside the rubber hose is around the trunk of the tree. Twist the wire around the stake. Repeat the process on the other stake. Using a pair of fencing pliers, twist the wire until it is tight enough to hold the tree in place. Repeat this procedure on the opposite stake, making sure the tree is secure from high wind and will grow straight.

Fertilizing

The general recommendation for fertilizing a narrowleaf evergreen is 3 to 6 pounds of 5-10-10 fertilizer per 100 square feet placed in a circle under the drip line at the outer end of the branches. Fertilize before new growth starts in the spring. Fertilizer with the analysis of 5-10-10 means 5 percent nitrogen, 10 percent phosphate, and 10 percent potash. If you apply 6 pounds per 100 square feet, you will apply 0.3 pound of nitrogen (N), 0.6 pound of phosphate (P₂O₅), and 0.6 pound of potash (K₂O).

5 percent of 6 pounds = 0.3 pound N

10 percent of 6 pounds = 0.6 pound P₂O₅

10 percent of 6 pounds = 0.6 pound K₂O

After applying the fertilizer, water it in with a garden hose sprinkler. Organic fertilizers such as cottonseed meal or soybean oil meal may also be used. Although there is an advantage to the use of organic fertilizers in that there is no danger of burning the plant, they are usually more expensive.

Watering

Narrowleaf evergreens need to be watered every 10 to 14 days during the first year after planting. Thoroughly soak the soil to 6 inches or deeper

when they are planted. Watering after planting will depend on the weather conditions of the geographic area.

Pruning

There are two methods of pruning narrowleaf evergreens.

1. *Pruning* individual branches gives the plant a natural, informal appearance. (Large branches may be removed from specific locations on the plant.) Spreading junipers and *Taxus* should be pruned by removing the ends of long twigs. This gives an informal appearance to these plants.
2. *Shearing* is done as when shaping a hedge. The ends of all small branches are clipped to shape the edges of the plant in straight lines, giving a more formal appearance. Hicks yew (*Taxus* × *media* ‘Hicksii’), columnar juniper, and globe arborvitae may be sheared in this manner.

Characteristics of Specific Narrowleaf Evergreens

Figures 27–6, 27–7, and 27–8 list narrowleaf evergreens used in landscaping. The plants are listed in sequence according to their height. The general breakdown includes one group of those plants 3 feet or less in height; a second group of those plants ranging from 3 to 9 feet in height; and a third group of those plants greater than 10 feet in height.

The following information is given for each plant.

- ✱ The *hardiness* of each plant. This number refers to one of the areas shown on the hardiness zone map at the end of the text. It indicates where the plant can be grown in the United States.
- ✱ *Foliage color* is the color of the narrowleaf evergreen. Some types vary from a very light green to dark green.



NAME	HARDINESS	FOLIAGE COLOR	PERIOD OF INTEREST	LANDSCAPE USE	OTHER REMARKS
<i>Erica carnea</i> (Spring heath)	5	bright green	small, rosy red spikes in April	groundcover	Attractive spring colors.
<i>Juniperus chinensis sargentii</i> (Sargent juniper)	4	steel blue	blue berries in fall and winter	groundcover	Excellent for planting along seashore. Does well on steep banks to prevent erosion.
<i>Juniperus horizontalis</i> 'Wiltonii' (Blue rug juniper)	2	steel blue	blue berries in fall and winter	groundcover plant	Excellent rock garden.
<i>Taxus baccata</i> 'Repandens' (Spreading English yew) all year. Requires well-drained soil.	4	dark green	fall and winter	foundation planting	Excellent plant; low maintenance; good color.
<i>Taxus cuspidata aurencens</i> (Dwarf Japanese yew)	4	light green	fall and winter	foundation planting	Compact plant that produces red berries. Requires well-drained soil.

FIGURE 27-6 Narrowleaf evergreens (3 feet or less in height).

NAME	HARDINESS	FOLIAGE COLOR	PERIOD OF INTEREST	LANDSCAPE USE	OTHER REMARKS
<i>Chamaecyparis obtusa</i> 'Nana'	3	deep dark green	all year	accent plant, specimen plant	Compact form; pyramidal shape.
<i>Juniperus squamata</i> 'Meyeri' (Meyer's juniper)	4	blue	all year	foundation planting	Needs good management and care in dry areas.
<i>Juniperus virginiana</i> 'Tripartita'	2	dark green	all year	foundation planting	Good in dry areas.
<i>Pinus mugo mughus</i> 'Compacta' (Mugho pine)	2	dark green	all year	foundation planting	Global shape; slow growing.
<i>Picea abies</i> 'Conica' (a) Dwarf Alberta spruce	2	light green	all year	foundation, planting specimen plant	Fine-textured plant.
(b) Bird's nest spruce	2	light green	all year	rock garden	Requires well-drained soil.
<i>Juniperus chinensis</i> 'Pfitzerana' (Pfitzer juniper)	4	blue green	all year	foundation planting, screen plant	Plant in full sun. Requires well-drained soil. Control of bag worms necessary.
<i>Juniperus chinensis</i> 'Hetzii'	4	blue green	all year	screen plant, foundation planting	Plant in full sun; does well in dry areas.
<i>Taxus</i> × <i>media</i> 'Hicksii' (Hicks yew)	4	dark green	all year; fall fruit	foundation planting, screen plant	Plant in full sun. Excellent in formal gardens; columnar shape. Requires well-drained soil.

FIGURE 27-7 Narrowleaf evergreens (3 to 9 feet in height).



NAME	HARDINESS	FOLIAGE COLOR	PERIOD OF INTEREST	LANDSCAPE USE	OTHER REMARKS
<i>Cyressocyparis leylandii</i> (Leyland cypress)	4	light green	all year	screen or hedge plant	Fast grower, excellent windbreak; columnar shape.
<i>Taxus baccata</i> (English yew)	6	dark green	all year	screen or hedge plant, foundation planting on large buildings	Female plant has berries. Will stand shade. Good background shrub.
<i>Taxus cuspidata</i> (Japanese yew)	4	dark green	all year	screen or hedge plant, foundation planting on large buildings	Pyramidal form. Tolerates shade. Rapid grower. Produces red fruit on female.

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FIGURE 27-8 Narrowleaf evergreens (over 10 feet in height).

- ❖ *Period of interest* is that time of year during which the plant is most attractive. This may be when it flowers, bears fruit, or changes foliage color. All of these create interest during a particular season of the year.
- ❖ *Landscape use* indicates how a particular plant is used in the landscape. The term *groundcover* refers to plants, other than grass, that are used to cover the ground. Groundcovers also have special uses, such as preventing erosion by holding steep banks in place.
- ❖ *Foundation planting* refers to plants that are used around buildings to help accent and tie the building into the landscape. *Rock garden* refers to plants used in gardens that are planted in a rocky environment, whether natural or artificially reproduced. (Figures 27-9 through 27-11). *Specimen plants* refer to plants that are used alone for their own beauty or as an accent. *Screen plants* and *hedges* refer to those plants that confine certain areas, used to reduce noise or an unappealing sight.
- ❖ *Other remarks* are given to help the individual make a more educated selection of plants.

Figures 27-12 through 27-18 identify narrowleaf evergreens by their leaf characteristics.



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FIGURE 27-9 Dwarf hinoki false cypress—*Chamaecyparis obtusa* 'Nana.'



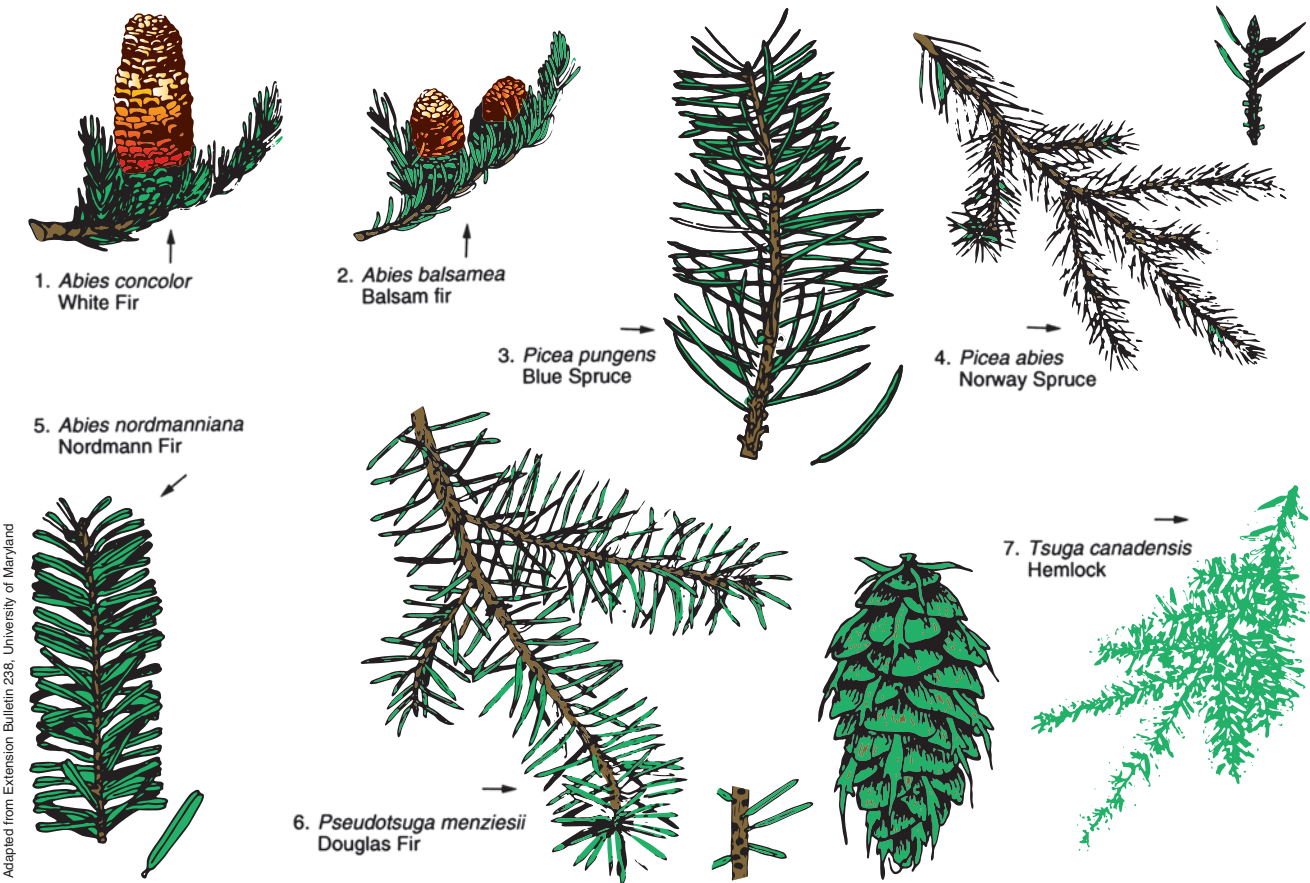
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FIGURE 27-10 Sargent juniper—*Juniperus chinensis sargentii*.



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FIGURE 27-11 Blue rug juniper—*Juniperus horizontalis* 'Wiltonii.'



Adapted from Extension Bulletin 238, University of Maryland

FIGURE 27-12 Narrowleaf evergreens with single needles.

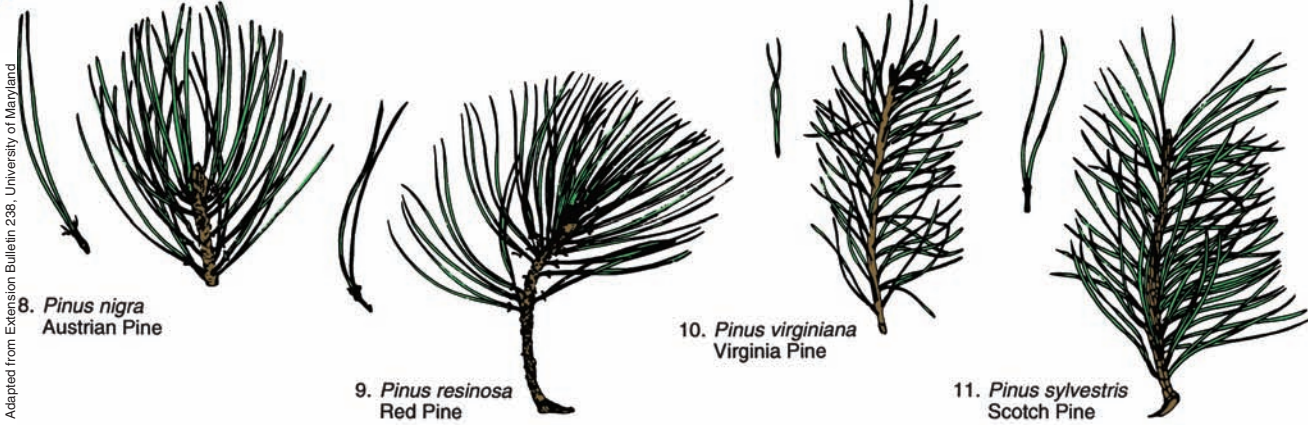


FIGURE 27-13 Narrowleaf evergreens with two needles per cluster.

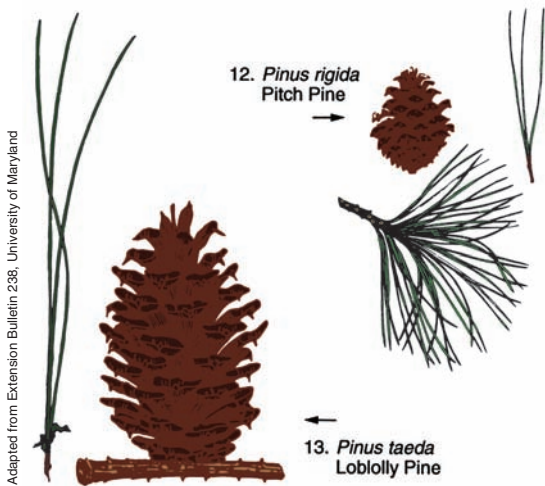


FIGURE 27-14 Narrowleaf evergreens with three needles per cluster.

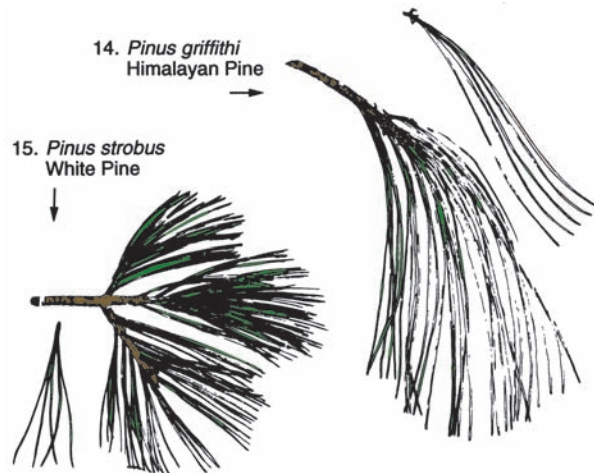


FIGURE 27-15 Narrowleaf evergreens with five needles per cluster.

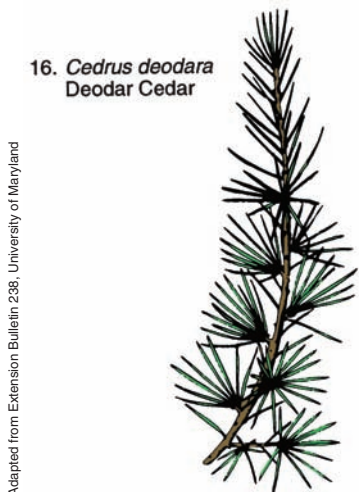


FIGURE 27-16 Narrowleaf evergreen with more than five needles per cluster.

Adapted from Extension Bulletin 238, University of Maryland

Adapted from Extension Bulletin 238, University of Maryland

Adapted from Extension Bulletin 238, University of Maryland

Adapted from Extension Bulletin 238, University of Maryland



17. *Larix decidua*
European Larch



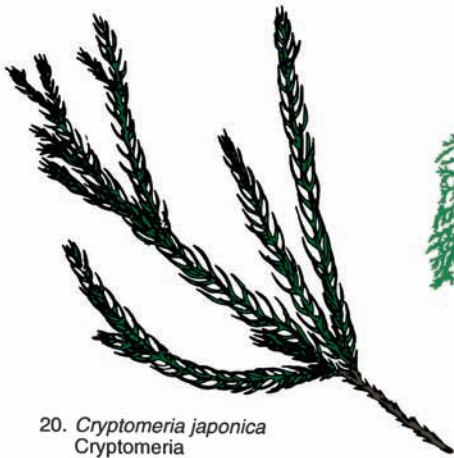
18. *Metasequoia glyptostroboides*
Dawn Redwood



19. *Taxodium distichum*
Bald Cypress

Adapted from Extension Bulletin 238, University of Maryland

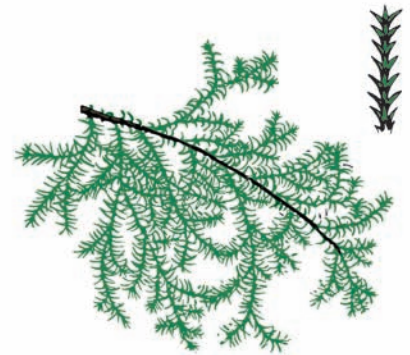
FIGURE 27-17 Narrowleaf evergreens that are deciduous. This group includes those evergreens that drop their needles in the winter.



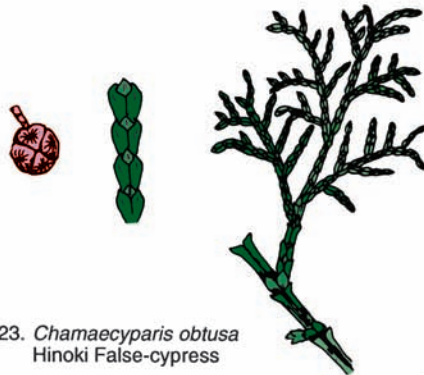
20. *Cryptomeria japonica*
Cryptomeria



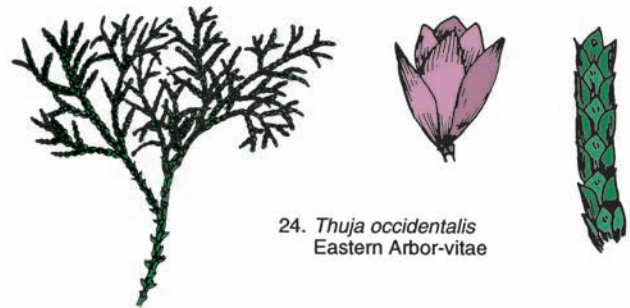
21. *Chamaecyparis pisifera* 'Plumosa'
Plume False-cypress



22. *Chamaecyparis pisifera* 'Squarrosa'
Moss False-cypress



23. *Chamaecyparis obtusa*
Hinoki False-cypress



24. *Thuja occidentalis*
Eastern Arbor-vitae



25. *Thuja orientalis*
Oriental Arbor-vitae



26. *Juniperus virginiana*
Red Cedar

Adapted from Extension Bulletin 238, University of Maryland

FIGURE 27-18 Narrowleaf evergreens with scalelike foliage.

SUMMARY

Narrowleaf evergreens are very popular landscape plants. There are two types of narrowleaf evergreen leaves. Pines have two or more needles (leaves) in a fascicle. Spruces and firs have single needles attached to the tree branching, whereas juniper has overlapping scales. Narrowleaf evergreens are excellent plants for windbreaks, accents, and specimen plants. They are shipped in several different ways: bare root, balled and burlapped, and containerized. These plants offer numerous landscape qualities year-round: foliage color, periods of interest, and landscape use.

STUDENT ACTIVITIES


1. Produce 10 cuttings of selected narrowleaf evergreens and propagate them. When propagating, follow the procedure outlined in Section 3.
2. Transplant a bare root, balled and burlapped, and containerized narrowleaf evergreen or explain the correct procedure for transplanting.
3. Demonstrate or explain the difference between pruning for an informal appearance and shearing.
4. Identify scalelike and needlelike narrowleaf evergreens from specimen twigs and branches.
5. Visit a local landscape nursery to learn the types of narrowleaf evergreens used in your geographic area.
6. Collect samples of narrowleaf evergreens to be preserved for future identification.
7. Search the Internet using the following terms: conifers; gymnosperms; evergreen trees.

SELF-EVALUATION

MULTIPLE CHOICE

Select the best answer from the choices offered to complete each statement.

1. Narrowleaf evergreens are popular landscape plants because
 - a) they are easy to transplant.
 - b) they remain green year-round and are adaptable to a wide range of soil types and weather conditions.
 - c) they are inexpensive.
 - d) none of the above
2. The leaves of narrowleaf evergreens may be either
 - a) needlelike or scalelike.
 - b) whorled or clustered.
 - c) alternate or opposite.
 - d) simple or compound.
3. Narrowleaf evergreens are shipped bare root
 - a) to reduce shipping weight when the plants are large.
 - b) only when they are dormant.
 - c) when the plants are still seedlings and quite small.
 - d) when their foliage drops and they are dormant.
4. Narrowleaf evergreens are often chosen for
 - a) their attractive flowers.
 - b) their edible fruit that serves as food for wildlife.
 - c) their bare stems in winter.
 - d) use as foundation plantings.

- 
5. A windbreak of narrowleaf evergreens can result in temperatures from _____ degrees warmer on the protected side.
 - a) 10 to 15
 - b) 5 to 10
 - c) 25 to 30
 - d) 0 to 5
 6. Balled and burlapped evergreens may be moved at any time of year except when
 - a) new shoots are growing.
 - b) they are dormant.
 - c) they are setting seed.
 - d) the soil is too wet.
 7. Plastic burlap around the root ball should be removed
 - a) entirely from the root ball.
 - b) before the plant is set in the hole.
 - c) by rolling it down the sides and leaving it under the ball.
 - d) only from the top of the ball.
 8. Balled and burlapped plants are set in the planting hole at a depth
 - a) of one-half the depth of the root ball.
 - b) equal to the depth at which they grew in the nursery.
 - c) 3 inches above the surrounding soil line.
 - d) 1 inch above the original soil line.
 9. Three to six pounds of 5-10-10 fertilizer per 100 square feet should be applied annually
 - a) in a circle at the drip line of the plant.
 - b) in holes punched into the soil around the plant.
 - c) under the mulch around the plant.
 - d) on top of the mulch around the plant.
 10. The best time of year to apply a 5-10-10 fertilizer is
 - a) in early fall.
 - b) in early spring before new growth starts.
 - c) in midsummer to encourage a longer growth period.
 - d) in late summer.
 11. Informal pruning to remove individual branches is the technique usually used to prune
 - a) Hicks yew.
 - b) spreading juniper.
 - c) columnar juniper.
 - d) globe arborvitae.
 12. Two narrowleaf evergreens that grow to a height of 3 feet or less are
 - a) Sargent juniper and blue rug.
 - b) dwarf Alberta spruce and Hicks yew.
 - c) English yew and Japanese yew.
 - d) all of these

FILL-IN-THE-BLANK

Fill in the blanks for each of the following.

1. 100 pounds of 5-10-10 has _____ pounds N, _____ pounds P_2O_5 , and _____ pounds K_2O .
2. 30 pounds of 0-20-20 has _____ pounds N, _____ pounds P_2O_5 , and _____ pounds K_2O .
3. 50 pounds of 10-20-10 has _____ pounds N, _____ pounds P_2O_5 , and _____ pounds K_2O .