



Shrubs: Functions, Planting, and Maintenance

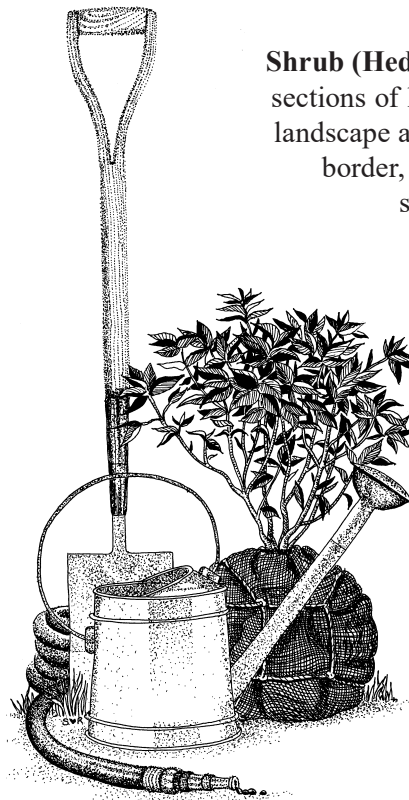
Alex X. Niemiera, Professor, School of Plant and Environmental Sciences, Virginia Tech

What is a shrub? A shrub is generally considered a multi-stem woody plant that is less than 15 feet tall. Of course, this and other plant size categories are definitions contrived by humans to categorize nature. What is the difference between a large shrub and a small tree? In many cases, there is none. A shrub does not become a tree just because it grows higher than 15 feet. Classifying plants into ground cover, shrub, and tree designations are aids to allow us to conveniently classify and describe plants, albeit with a significant amount of ambiguity.

Shrub Functions

Foundation Plants. Shrubs are often placed at the base of a home to hide the foundation. Historically, early houses were built without deep footers, basements, or crawl spaces. Thus, the base of the house appeared unkempt and plants were used to cover the unsightly area. In some modern-day houses, the foundation is not covered by façade materials (e.g., brick, siding) as the rest of the house. Thus, foundation plants cover the non-façade areas. In some cases the façade covers the entire lower portion of the house. Regardless of the house construction, foundation plants are used to act as a “base” or “anchor” that impart a solid feeling to the structure and visually link the house to the surrounding landscape. Foundation plants also break up the stark right angle junction of house and ground. Evergreen shrubs, either broadleaf shrubs (e.g., boxwood, rhododendron, Japanese holly) or conifers (e.g., junipers, dwarf pines) are used so that the structure is covered the entire year. You can select species

so that you have some showy seasonal attractiveness in the planting such as flowers, brightly colored foliage, or red fruit. You must take into account the mature size and growth rate of the selected species to minimize the need for frequent pruning and other maintenance tasks (e.g., removing leaf litter, spraying). This is especially true for shrubs placed near windows and doors.



Shrub (Hedge) or Privacy Border. Adjacent houses, sections of landscapes, or private portions of a home landscape are often separated or enclosed by a shrub border, often called a hedge. There are many shrubs that can effectively serve as hedges.

There are also several tree species such as hornbeams (*Carpinus betulus* and *C. caroliniana*), beeches (*Fagus grandifolia* and *F. sylvatica*), and hedge maple (*Acer campestre*) that can be pruned into hedges. Shrub borders generally are more aesthetically pleasing and less expensive than the cost of installing a fence. However, a shrub border usually requires more maintenance than a fence. You should consider the mature size and growth rate of the shrub species to minimize the need for frequent pruning and other maintenance tasks. Hedges do not necessarily need to be tall. The classic French and

English parterre gardens have planting beds that are edged with tightly clipped low hedges. Hedges may be composed of evergreen or deciduous species.

Accent Plants. Accent plants are those placed next to a prominent landscape feature to frame or add emphasis to that feature. Examples of accent plants are 1) shrubs placed on either side of a doorway or entry path, 2) a vine covering an arbor or espaliered around a doorway, and 3) shrubs placed to the side or beneath a sign, boulder, or sculpture.

Specimen Plant. In some cases, a woody plant will have significantly showy attributes that warrant featuring it as a specimen plant. Such a plant is usually strategically placed in the landscape where one's view is focused, and hence becomes a focal point. Trees usually serve as specimen plants, but some very showy large shrubs such as crape myrtle, rhododendron, or dwarf conifers can have attributes which confer specimen plant status such as having more than one season of attractiveness, handsome foliage, interesting form, and showy bark. You can draw attention to a particularly handsome plant when other shrubs, usually similar in size, shape, color, or texture, are used to frame, surround, or serve as a background for the specimen plant.

Mass Plantings. As mentioned, shrubs can be grouped in a landscape to serve a dividing function. However, in the case of a mass planting, shrubs in an island bed serve more of a landscape statement than a screening function. As such, they add dimension and drama to the landscape. Mass plantings are used in large landscapes that can accommodate this use of shrubs.

Ground Covers. Ground-cover shrubs are low-growing shrubs (around 3 feet or lower) and often have a spreading habit. Ground covers are commonly used to cover large portions of planting beds or landscapes. Relative to landscape design principles, ground covers and mass plantings serve the "repetition" principle in which plants of a particular size, shape, color, and texture are repeated to easily lead one's eye through a landscape and connect portions of the landscape. Ground covers also reduce the amount of turf that has to be mowed, give the landscape a three-dimensional appeal, and serve as wildlife habitats. Examples of ground covers are shore, creeping, and Japanese garden juniper, pachysandra, and vinca. Ground covers, especially those that are low in stature and drought tolerant, are good candidates for areas with shallow, rocky soils.

Most shrubs are sold as container-grown plants and a small percent of shrubs are sold as ball and burlap (B&B) plants. When purchasing a container-grown plant, make sure that the plant is not root-bound (a condition when the plant has stayed in the container too long and the soil ball is composed of a solid mass of roots that often encircle the root-ball (see photo). You can plant a container-grown plant most of the year but the best time to plant is in the spring and fall.



Example of a root-bound, container-grown plant. Notice how roots completely encircle and cover the exterior of the root ball. (Photo courtesy of John James.)

Shrub Selection

You must consider the environmental aspects of your site. For example, is your site mostly sunny or mostly shady? Is the soil in the site generally moist, average, or dry? Do you have good topsoil or poorly drained clay? Is the soil acid or alkaline (determined by a soil test)? Is the site particularly windy? What plant hardiness zone are you in? Once you have answered these questions, then you can select shrub species that will be suited to your site and accomplishes the desired functions.

If your landscape is in need of many shrubs, avoid using only one or two species. Too few shrub species is akin to putting all your eggs in one basket. If there is a pest problem or any other potential deleterious factor, then the chance for a significant portion of the shrub population being affected is great.

Planting

Since wet soils can reduce plant growth and survival, you should plant in a well-drained soil. To test for soil drainage, dig the hole for your new plant and fill it with water. If the water doesn't drain in 24 hours, plant elsewhere.

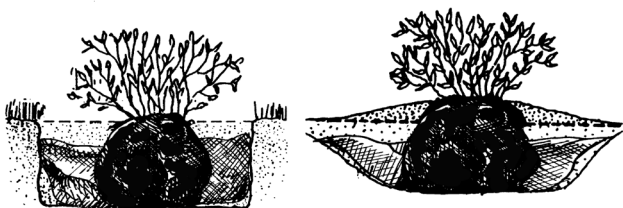
To plant the shrub, dig a hole at least twice as wide as the diameter of the shrub's root spread or root-ball. Do not dig too deep; once the plant is placed in the hole, the top of the roots should be level or slightly above level with the surface of the ground. Remove all tags, wires, or ropes from stems and trunk. These can girdle and kill the plant as it grows.

If the shrub is in a container, ease it out carefully without disturbing the root ball. Save the plastic pot to recycle. Cut any circling roots, and then place the root ball in the hole. For B&B plants, place the plant in the hole before removing the burlap covering. Pull the burlap down off the root ball and drape it on the sides of the ball. Do not attempt to pull the burlap from under the plant – this could damage the root ball. If a B&B root ball is enclosed in a wire basket, and there is no other covering, the basket can be left in place. Cut off the first horizontal round of wire so that the wire does not interfere with raking or cultivation. Many B&B plant root-balls are bound with twine. Remove all the twine (natural or synthetic) from the trunk of the plant. Also cut synthetic twine from the sides of the ball since this type of twine does not readily degrade.



When replacing the soil in the hole, do not add organic matter since this generally does not increase the growth or survivability of the plant. There are exceptions to this recommendation (discussed in next paragraph). If the original soil, or backfill, contains too much rock or construction debris, replace it with local topsoil. When the hole is about three-fourths refilled, level and turn the plant if necessary and water to settle soil. Then finish filling the hole with backfill to its original level. Use excess soil to build a berm or ring about 6 inches from the outside edge of the hole and irrigate.

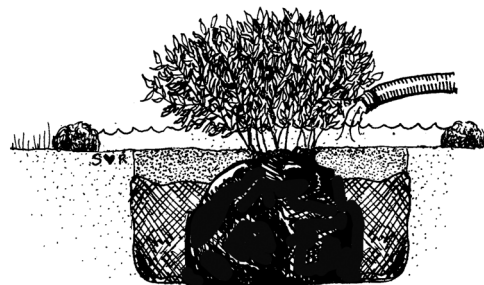
Some species such as mountain laurel (*Kalmia latifolia*) and azaleas (*Rhododendron* spp.) have very fine roots that do not penetrate the surrounding backfill soil unless that soil has a loose consistency. Thus, these species have a low survivability rate in clay soils. In the case of clay soils, amending the backfill soil is recommended for fine rooted species.



If shrubs are to be mass planted in a bed or where the entire planting area can be worked, the soil can be amended by incorporating 3 to 5 inches of organic matter into the entire bed to the depth equal to the height of the root ball. The shrubs are then planted into the amended area.

Watering

Watering during dry periods of the first growing season is crucial, especially with container-grown plants. Regardless of the season when you plant, make sure that the root ball does not dry out. This is especially important for plants that are transplanted in the spring. Such plants may not have established roots into the surrounding soil by summer. The potting soil of most container-grown plants has a one- to two-day available water supply; thus, watering two to three times a week in the summer can be expected during periods of no rainfall. B&B plants will only require weekly irrigation since the mineral soil around the roots has a high water holding capacity.



Spacing

The spacing between shrubs at planting is in part determined by the mature size of the shrub or the desired plant size based on your pruning regime. You must keep in mind the volume of the plant relative to the available space; this is especially true for areas around doors, windows, and walkways. In the case of a hedge, spacing also depends on how quickly you want the plants to grow together. Deciding how close to place plants is a compromise between planting plants at a close spacing (having plants grow together quickly) versus the cost of buying more plants, which will be required for a closely spaced planting. Conversely, a wider spacing will take longer to fill in but you will be buying fewer plants and spending less money.

Mulching

Place mulch (pine needles, straw, bark chips, or slightly decomposed or shredded leaves) 2 to 3 inches deep

around the shrub. Mulch slows water loss from the soil, reduces weed growth around the plant, and protects the shrub from lawn mower and string trimmer injury. Avoid overly deep mulch or piling the mulch up against the trunk of the shrub; this promotes shallow roots, disease, and pest injury.



Fertilizing

Most nursery-grown plants, especially, container-grown plants have been well fertilized in production. Many plants may have controlled-release fertilizer (small prills) in the potting soil when you purchase the plant. Thus, they may not need fertilizer at planting unless the soil you are planting into is nutrient deficient. You may determine the nutrient status of your soil by conducting a soil test. Soil-test results will indicate what type and amount of fertilizer to apply in the event of a nutrient deficiency. You must remember that fertilizers are salts that may be damaging to plants during dry periods. Using a controlled-release (slow-release) fertilizer instead of a soluble fertilizer reduces the chance of fertilizer damage to the roots.

Pruning

The time of year to prune shrubs depends on whether the species blooms on old wood or new wood. If your shrub does not have showy flowers, a yew for example, then this discussion does not apply (see the following paragraph). Shrubs that flower on old wood produce flower buds in the year prior to flowering. For example, a forsythia that flowers in spring 2008 produces flower buds in the summer of 2007. A species that flowers on new wood produces flowers in the year that it flowers. For example, butterfly bush or crape myrtle sets flower buds in 2007 and flowers in 2007. Thus, prune plants that flower on old wood just after they flower. If you prune later in the year, you will most likely be cutting off flower buds that will open the following spring. You can prune plants that flower on new wood any time after they flower to just before they leaf out in the spring.

In the event your shrubs do not produce showy flowers (e.g., yews, barberries, boxwood), you can prune most any time of the year except for late summer. Late-summer pruning will most likely encourage a subsequent shoot flush that may not harden off in time for winter. Thus, this lush foliage will be damaged or killed in winter.

Summary

The key aspects in planning a shrub planting are determining 1) the function of the shrub, 2) the site conditions, and 3) that the shrub is suited to site conditions and space. After the shrub is planted according to the prescribed steps, you must irrigate as needed and mulch the root-zone area. Fertilizing is only necessary in some cases.

Slow-growing species, B&B plants, or shrubs planted in the fall may have a small amount of root growth from the root-ball into the existing soil. In these cases, shrubs may require supplemental irrigation in the year following transplanting.

Additional Information

For more information on selection, planting, cultural practices, and environmental quality, contact your local Virginia Cooperative Extension Office. If you want to learn more about horticulture through training and volunteer work, ask your Extension agent about becoming an Extension Master Gardener. For monthly gardening information, subscribe to The Virginia Gardener Newsletter by sending your name and address and a check for \$5.00 made out to "Treasurer, Va. Tech" to The Virginia Gardener, Department of Horticulture (0349), Virginia Tech, Blacksburg, VA 24061. Horticultural information is also available on the Virginia Cooperative Extension website at www.ext.vt.edu.

Acknowledgments

The author extends thanks and appreciation to Alison Bremner, Extension agent, horticulture, Warrenton; Wythe Morris, Extension agent, horticulture, Hillsville; Bonnie Appleton, Extension specialist, nursery, landscape and urban tree management, Virginia Beach; and Joyce Latimer, Extension specialist, greenhouse crops, Virginia Tech, for their reviewing efforts and expertise.

This publication was originally authored by Diane Relf, Extension specialist (ret.), Environmental Horticulture, Virginia Tech. The original development of

this series was funded by ESUSDA Smith Lever 3(d) National Water Quality Initiative Funds and the Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation.