Sullivan's Practical Landscaping Guide

By Bill Sullivan

Sullivan's Landscaping, Inc. of Northern Virginia

www.sullivanslandscaping.net

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Bill Sullivan

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To Donna, Eric, Bob, W.P. and Tushar, who shared my landscaping dream, and to Josephine and Bill, who pushed me to write.

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Bill Sullivan began landscaping as a 15-year-old in Alexandria, Virginia. He typed up an advertisement, distributed it on Key Drive, and waited for the telephone to ring.

Five homeowners called. One was Lt. Gen. Arthur S. Collins, who hired Bill to address the eyesore in his front yard. There was a hill where grass wouldn't grow. Bill was tasked with planting two ground covers — *Ajuga reptans* (**bugleweed**) and *Vinca minor* (**periwinkle**) — while trying to keep his balance on the slope. From day one, Bill and the general, clad in dungarees, planted thousands of the small plants.

Ajuga, periwinkle, and an Army general for a friend

Later that year the general published his first book — *Common Sense Training* — and signed a copy for Bill. The book chronicled the general's relationship with the soldiers he commanded in Vietnam. In those pages, it was clear that Collins valued the enlisted man as much as the officer. The teenager in charge of the general's yard could relate. Thirty years later, the general has passed on but that slope is lush with the their evergreen ground cover.

VIPs were regular guests at the Collins home. One time, ABC News anchor Harry Reasoner strode up the steep driveway to share dinner with the general and his wife, Nim. On another occasion, U.S. Army Chief of Staff Gen. William Westmoreland snapped Bill a nod as he made his way up the driveway.

Before he got his driver's license, Bill's mother, Dorothea, dropped him off and picked him up at customers' homes. Bill saved his earnings and, two years later, paid $1,725 in cash for a used 1971 Ford Maverick. Sharp but functional, the car had plenty of room for rakes, clippers, and lawn bags. In January 1976, Bill drove the car to the Midwest to attend journalism school at Northern Illinois University in DeKalb, where his welcome was –35° with a –65° wind chill.

"You're in charge of the landscape. Make sure it looks good for Mr. Winkler."

Bill's first job out of college was policing the landscape at the Mark Center Office Park construction project off Beauregard Street in Alexandria. A supervisor, Jan Woodman, put Bill in charge of the construction landscape. But his unofficial supervisor was property owner Mark Winkler, who visited regularly in his tweed jacket and galoshes, making sure bulldozers weren't cavalier about removing trees. One of Mr. Winkler's favorite elements in his office park landscape was the duck pond. When the 8,000-square foot rubber liner arrived, every laborer on the site helped unfold it and pull it into place over the hole in the ground. Today, Canada geese, mallards, and the occasional heron frequent the pond.

Bill's "formal" plant education actually started at home. On Sunday "drives," Bill's mom pointed out azalea, rhododendron, gardenia, dogwood, purple leaf plum, redbud, magnolia, crabapple, and cherry. A secretary for the federal government, she read in her spare time but never about plants.

In the early 1990s, Bill again solicited his landscaping services. His first customer in Fairlington was an Alabama gentleman, Peter Brock. Another early customer, Catherine Vannoy, loved to garden but was too ill to do so. She would sit by the window, smile, and nod her approval.

"I'll get the refrigerator and dishwasher out. Can you take down these trees?"

In the late 1990s, Bill met a W.P. Fowler, who had a refrigerator, dishwasher, and four big cedar trees in his back yard. "I'll get rid of these appliances," he said, "but can you take down these trees?" Bill and his nephew, Billy, razed the cedar grove and went on to landscape the rest of Fowler property.

Before calling the outdoors his office, Bill worked for 17 years as a sports journalist. His first job was as a reporter-photographer with the *Arlington Catholic Herald* Diocesan newspaper in Falls Church.

When Bill learned Washington Redskins head coach Jack Pardee attended mass daily, he pitched the story to his editor. "If you think that would be appropriate," said his editor-in-chief, Charles Carruth. Bill arranged the interview, visited Redskins Park and got his story, which was later sold on the National Catholic Wire Service.

After a year at the *Herald*, Bill worked part-time for the *Washington Star, Washington Post, Alexandria Gazette,* and *Alexandria Journal* newspapers. For two years, he was a sportswriter/columnist for *The Poughkeepsie Journal* in upstate New York.

Carlos and Ken make *Sports Illustrated Magazine*; the College of William & Mary gets a television network

As sports information director at George Mason University and the College of William & Mary from 1980-1988, Bill wrote one press release too many before moving into marketing and promotions. Twice, student-athletes he nominated won the "*Sports Illustrated* Player of the Week" award. Winners were Carlos Yates of George Mason and Ken Lambiotte of William and Mary.

In Williamsburg, Bill founded the first-ever cable television network at William & Mary, producing a weekly sports show seen in six Mid-Atlantic Region states. The program aided the school's endowment and helped attract student-athletes.

In 1996, Bill enrolled in the U.S. Department of Agriculture Graduate School to study landscape design. Begun in 1922, the USDA Graduate School is a continuing education forum for federal government employees in the Nation's Capital. Five years after registering, Bill earned his USDA "diploma."

In 2005, Bill's endeavor became an S Corporation, Sullivan's Landscaping, Inc. A year later under the stewardship of Wilda Wynn at Wynn Graphic Design, Bill had his first web site, ***www.sullivanslandscaping.net***. When blogging was in vogue, Bill created ***www.sullivanslandscaping.blogspot.com***. The blog is his more interactive site, and regularly provides customers with fresh FAQs and

gardening tips. In early 2008, Bill published a book, *Sullivan's Practical Landscaping Guide* — sharing plant knowledge from school and a practical acumen as a landscape contractor, where he has served over 700 customers.

Nadia, Spencer, Chef, Waldo, Nadia, Darby, Jordy, and Pepsi

When it comes to the plants he installs, Bill is as passionate about them as his customers, many of whom are acquaintances and friends. His clients' dogs are a fringe benefit of the job, Bill's favorites being Anna's golden retriever, Nadia; Joe and Kim's Boston terrier, Chef; Harvey and Linda's Waldo; Joan and Jerry's Darby; Roxy's black Lab mix, Jordy; and Kim's Dalmatian, Spencer, who shared a cheeseburger or two with Bill during back-yard plantings in Alexandria. Sue and Carl's tabby cat, Pepsi, kept Bill company while he built wooden planters in 100-degree heat.

His plant knowledge makes Bill an authority in the field. He writes a monthly column, "Down to Earth Patio Gardening," for the Fairlington Citizens Association and has spoken to "FairGolds," a community garden club.

He lives in Alexandria with his two hounds, Pepper and JoJo. He still writes part-time for a living, reporting on national news for an online consortium of attorneys. Spare time finds him reading, walking his hounds, updating his Major League Baseball cap collection, and researching the New York Mets, his favorite team.

For nearly two decades, Bill Sullivan has earned the trust of the hundreds of homeowners he has served. To reach Bill for a complimentary consultation, call 571.213.9567 or email him at *billsullivan41@gmail.com*.
Visit his sites:
Web: ***www.sullivanslandscaping.net***
Blog: ***www.sullivanslandscaping.blogspot.com***

Annuals

Annuals are flowering plants that live for one growing season. They are grown in greenhouses in very small packets in flats and arrive at nurseries in late March and early April. By mid-April, nurseries offer a full inventory of the small plants.

Annuals are herbaceous (non-woody) and fibrous-rooted. Fragile plants, they are not dog-friendly if you have, say, a golden retriever or Labrador retriever who freely bounds through your garden beds. Annuals need regular watering and grow to 14 inches tall if planted in the correct sun vs. shade culture.

Ground cover annuals provide color, fill gaps along the garden floor and accent larger shrubs by providing a contrasting height and spread. Since their "root ball" is about the size of a meatball, a trowel is adequate for planting. A trick is to "bunch" the plants together in the ground, giving the landscape a more mature, dynamic look.

Colorful annuals show from April until the second frost in December. Think about this: seven months of pastels, compared to the much shorter flowering period of a perennial or flowering tree. When annuals die, you simply pull them out of the ground. They are long-lasting, affordable, and a low-maintenance addition to any sun or shade garden. Here are some you may research and plant in your garden:

Impatiens (**balsam**) flowers are hooded, five-petaled, and come in orange, pink, coral, white, and red. The flower is non-fragrant and an inch wide. *Impatiens walleriana* and *balsamina* prefer heavy shade. The stem resembles a succulent and the leaves are smallish and curved at the terminal tip. I used to religiously water an *Impatiens* garden for a customer during summer and watched the plants reach 2 feet tall.

They prefer shade, so plant them under a tree where they won't get direct sunlight. "**New Guinea**" **impatiens** are larger plants with a variegated leaf midrib. They are sold in baskets and need daily watering in our summer heat.

The **begonia** needs more sun and has a smaller flower in parts. Its leaf is scalloped, 3 inches wide, and shades of maroon and purple. Begonia's flower comes in red, pink and white. The plant has a pendulous type, "Pendula," that I've seen in books but never in nurseries. The rounded petals of the begonia are somewhat uneven as they grow around a yellow center and hide its basal foliage.

The **petunia** has the floppy, 4-inch-wide flower that comes in red, white, pink, violet, and color combinations. A flowering basket of petunia is still one of the prettiest elements in a garden. The five-lobed, fluted bloom is sticky to the touch, delicate, and will flop in a downpour. The foliage on a petunia grows on long stems in full sun.

Tagetes (**marigold**) loves sun and comes in yellow or mustard. "**Naughty Marietta**" comes in yellow with a wide purple throat. "**Hero Spry**" is a maroon flower with a yellow center. Its carnation-like flower dome sits above parsley or fern-like foliage. Its flower is tall (5-6 inches) and singular, so plant them together for a fuller effect.

Alyssum is a mat-forming evergreen perennial sold in our area as a perennial. The flower is a pastel corymb — lavender, pink and white. A sun lover with a very small root, the plant can be inserted in the open borders between flagstones in a patio to break up the starkness of a gray hardscape. The fragrant summer flowers also look pretty in a rock layout.

Zinnia flowers in a spherical fashion in orange, red, and pink with yellow centers. It resembles the **marigold** or *Bellis* (**daisy**). The flower grows atop an upright, 6-inch stem and likes sun.

Did you know …?

Zinnia and morning glory seeds were popular choices for seed packets sold by students back in the early 1960s.

Ipomoea (**morning glory**) is a solitary, fluted flower whose throat fades to white. Morning glory blooms early in the morning on a thin, climbing vine. The flower resembles a petunia bloom, but it is less floppy and wider. When I lived in Poughkeepsie, New York, in 1990-1991, I used to drive north on Route 9W. When I'd come to the town of Saugerties and cross over the creek in the center of town, there was a house surrounded by a 4-foot-tall black, wire fence, covered with the "Heavenly Blue" cultivar. Before you plant morning glory, cut the seeds in half and soak them in water overnight. Morning glory needs full sun and protection from strong wind.

Salvia (**sage**) has a two-lipped flower that blooms in panicles of red, pink, white, and violet on erect stems. It needs full sun and has strictly basal (low) foliage. With regular watering, *Salvia* will grow over a foot high and provide the tallest flowering accent in the garden. *Salvia* "Fulgens" is a red flower that blooms in summer. *Salvia farinacea* "Victoria" has deep blue flowers with dense, basal branching near the ground.

Space at local nurseries limits the inventory of annual plants. Walk around and you'll find "new" types in assortments of color. The plants are affordable and you'll get your money's worth, considering how long they'll bloom. It's the easiest plant for the homeowner to install; all you need is a trowel, a pair of gloves, and a knee mat. When you water annuals, a soft, fine spray from the hose will work, even if you water the tops of the plants. But don't use a full-throttle hose spray or you will disfigure the flowers and leaves.

Bark Patterns

Walk through the woods in winter and you'll focus on tree bark. Most of the foliage is lying on the forest floor so the only thing to notice is the bark. See which kinds stand out from others. It's a beautiful characteristic to appreciate in winter. Here are my favorites:

Betula nigra "Heritage" (**river birch**): A picture of this trunk should go in *Webster's Dictionary* next to the word "exfoliate." This tree features peels of orange and brown along its beige trunk.

Carpinus caroliniana (**American hornbeam**): Differentiate it from the *Fagus* (**beech**) by the swollen bulges — like muscles — that wind around its trunk. Its bark has a smooth, gray finish like the *Fagus* (**beech**) and a narrow, serrated leaf but its "muscles" are the give-away.

Carya tomentosa (**white** or **mockernut hickory**): Longitudinal ridges (running vertically) span the length of this trunk. Rub your fingers sideways, across the ridges and notice they form a net-like, diamond pattern, as described by Michael A. Dirr in his *Manual of Woody Landscape Plants.*

Cornus florida (**flowering dogwood**): Speckled squares of cork-like bark decorate the thin and somewhat contorted trunk of this beauty. Each square is outlined in black against a gray-brown background.

Diospyros virginiana (**common persimmon**): The bark of this tree has another checkerboard pattern similar to that of *Cornus* bark. The charcoal-black, scaly blocks are prettier, however, with the apricot, half-dollar-sized berry that clings to the branch in winter.

Fagus grandiflora (**American beech**)**:** Its bark bears a smooth gray finish with horizontal creases up the length of the trunk. Its light copper-colored leaves hang from the stems into winter. This tree often

bears the scarring from smitten young lovers who carve their initials inside a heart on its soft bark. Considering the reason behind the "heartwork," the tree doesn't seem to mind.

Lagerstroemia indica and *faurei* (**crape myrtle**): Palomino and ivory patterns appear on *indica* and swirls of cinnamon and cream on the *faurei*. The bark on both is so smooth you can rub your hand along the branches without getting a sliver.

Malus floribunda (**Japanese flowering crabapple**): This tree has gray-brown bark covered with scales and knobs. This has a different look from its flowering neighbor, *Prunus*, which has a smoother bark except for raised lenticels.

Metasequoia glyptostroboides (**dawn redwood**): The bark is a light, reddish brown, and exfoliates in papery-thin strips. Just below branch attachments are "armpit-like" depressions on the trunk, as described by Dirr.

Pinus bungeana (**lacebark pine**): This tree grows to over 100 feet tall and is covered with a patchwork of square-like, puzzle pieces that completely cover the trunk all the way to its top. These plates resemble a roof covered in cedar shingles, but they are gray, not red-orange. Since the tree branches, foliates and fruits only near the top, the bark will grab your eye during a wooded winter walk. The "Compacta" cultivar grows half the size of the parent with the identical bark.

Platanus occidentalis (**sycamore**): Cream and green splotches decorate its thick gray trunk, sometimes only up high. The exfoliation fills all the branches off the main trunk. It's the most noticeable tree in winter and looks whitish from a distance, much like the *Betula* (**birch**).

Prunus x yedoensis (**Yoshino cherry**) and *Prunus sargentii* (**sargent cherry**): Concentric but broken circles go around the trunk from the ground to the point where it starts to branch out. The bark is a polished burgundy-gray. These "circles," called *lenticels*, permit the

tree to absorb carbon dioxide and release oxygen. The lenticels enhance the photosynthetic process.

Ulmus parviflora (**Chinese elm**): This tree has mottled bark, unlike that of other elms, which have ridges and furrows along their trunk. It exfoliates irregularly, exposing a lighter-colored orange beneath. It's similar to the *Zelkova serrata* (**Japanese zelkova**), except that its fruit is a half-inch-long, brittle, wheat-colored samara (we called them helicopters as kids).

Zelkova serrata (**Japanese zelkova**): The bark on a young tree is a smooth gray, but as it matures the bark develops cherry-apricot lenticels, similar to those of the *Ulmus parviflora* (**Chinese elm**) but not as exfoliating. It is comparable to the Chinese elm but Zelkova fruit is a kidney bean-shaped drupe, a quarter of an inch wide. The fruit of the Chinese elm is an elliptic samara.

Birds

To attract birds, think about water, food, shelter and inviting nesting areas. Those three features will bring regular avian visitors to your yard. Having a cat in the window won't help, and squirrels also are a deterrent.

Bird baths — whatever the size — entice birds. Make sure you have fruited specimens in your landscape. The mockingbird enjoys *Pyracantha* (***firethorn***), *Ligustrum* (***privet***), and *Ilex* (**holly**) fruit. Cedar waxwings like the pomes of a crabapple and the fruit of a holly. Also include specimens with dense foliage. This allows a bird to build a nest safe from predators such as crows, hawks, cats, or herons. Squirrels may not attack a bird but they could nose around a nest for eggs. Bird feeders readily attract birds, especially these types: house finch, goldfinch, cardinal, blue jay, robin, nuthatch, wren, sparrow, thrush, cowbird, and chickadee. However, the droppings of broken seed will attract rodents.

Hummingbirds use their bills to extract nectar from tubular flowers such as *Lobelia cardinalis* (**cardinal flower**), *Weigela*, *Lonicera* (**honeysuckle**), and *Tabebuia* (**trumpet vine**). Thus, any flower bearing nectar in a bugle-shaped bloom definitely will draw a hummingbird. Another attractor is a feeder with sugar water. Once I was at the Caledon Nature Area near Fredericksburg and noticed three or four hummingbirds hovering at a sugar-water feeder on the deck at the visitor center. The birds weren't fazed by one another or gawking tourists.

If you like to watch butterflies and moths (they can be interesting, too), plant a *Buddleia davidii* (**butterfly bush**). When I plant *Buddleias*, butterflies alight on the shrub while it is still in the container. I've even had them perch while I've planted the shrub. The *Buddleia* bloom is weedy-smelling but the cone-shaped flowers sit on

stretched-out branch tips. Monarchs and swallowtails will flutter and sit for long periods when the shrub is in bloom.

Echinacea purpurea (**purple coneflower**) readily attracts goldfinches. They perch on the spent flower head and poke their bills into the compacted seed thicket. *Rudbeckeia fulgida* (**black-eyed Susan**) is a coneflower clone.

Bulbs

Global warming and Indian summer compromise early bulb plantings. So you need to make sure the cold temperatures are here to stay before planting bulbs. As I wrote this, the temperature is 71° on November 21, 2007, and 60° on January 7, 2008, in Alexandria, Virginia. For spring-flowering bulbous plants, push the bulb down into a narrow hole, four to five times the depth of that bulb.

A bulb is also a corm, tuber (actually a potato), and rhizome. Most bulbs are sheathed in a papery, layered fiber, which is an insulator (as is the warm soil) against winter's cold. Be sure to spread a light layer of straw, mulch, or pine needles over the soil for insulation.

For March color, plant *Crocus*, *Hyacinthus* (**hyacinth**), and *Galanthus* (**snowdrop**), whose blooms hang upside down. Crocus is the very first bulb to germinate. You'll notice thin green leaves with a needle-like silver stripe down the center. A hyacinth's flower grows in a cone-shaped raceme and offers the strongest fragrance in the bulb garden, though it is short-lived. In April, *Narcissus* (**daffodil**) appears. Snowdrops and daffodils reproduce readily, so leave space in the garden for their spreading habit. Some call daffodils "jonquils," although the latter is actually a cultivar, *Narcissus* "Jonquilla." Shaped like a goblet, *Tulipa* (**tulip**) appears on slender, gray-green, waxy scapes from April to May. Depending on the group (there are 15), tulips bloom from April into the summer. *Iris* blooms in spring and grows well in our summer heat. Plant them from July to October.

Did you know …?

The tulip originates from Persia, not Holland. The Turkish word for *gauze*, with which turbans can be wrapped, was used for the flower because of the resemblance.

—SOURCE: Wikipedia

Tulips can be clones of the mother plant and thus take up to a year to grow full size. Moreover, they don't live long. However, varieties called "Darwin hybrids" have longer lives. Good drainage is important for tulip vigor. This is also true of *Lilium* (**lily**). Raised beds are best since this automatically allows for drainage into the existing soil bed.

Bone meal used to be a convenient fertilizer but the nitrogen and micronutrient content has been compromised with processing. Just add some granular fertilizer into the hole and sprinkle sand or pea gravel under the base of the bulb to provide drainage. Steel wool strips around the sides the bulb (but not covering it) also may deter squirrels, voles, and moles.

As for the foliage, don't cut it back until it has turned brown. Then, it easily can be pulled from the base of the plant. Foliage that remains attached to the plant nourishes the bulb for repeat bloom next year.

If a bulb pushes up foliage but not flower (as in the daffodil), dig it up and break it apart. Plant the "new" bulb separately. Keep the foliage attached. Liberally plant your bulbs — masses of flower are prettier than singular spikes.

Look at the bulb before putting it in its hole. Sometimes, it's hard to tell which end is up. The point goes up and the rounded part with the exposed root fibers goes down. Some bulbs have two points that don't always point straight up. Just level the base with the "germinating" points at a 45-degree, upward angle. Eventually, stems will grow vertically out of the hole you've dug in the soil.

Butterflies

Since nectar is their diet, you'll need flowers, which butterflies prefer over feeders filled with sugar water. But feeders with nectar will work. Since a butterfly's diet includes pollen, having many kinds of flowers might make the butterfly hover while it is busy pollinating. A well-fed butterfly may "move into" your landscape since it is a territorial insect.

Water is another attractor, but not by way of the birdbath. The weight of water in large containers or in a pond with moving water could crush a butterfly's soft-scaled wings. Some butterflies, such as the monarch, live not on nectar but fruit. Small pieces of overripe fruit placed in a container might attract many species of butterfly.

Shelter is another consideration. Being cold-blooded and delicately winged, butterflies need shelter on a windy day. A *Hydrangea petiolaris* (**climbing hydrangea**) trellised on a fence could be a suitable home. The plant's large leaves provide cover and its thick woody meandering stem serve as a perch. There is enough open area for the butterfly to move about but dense enough foliage for the insect to nest or rest.

Caterpillars need food as they grow into the pupa (chrysalis) and imago (adult) stages. Perennials offering good sources of food include *Abutilon* (**mallow**), *Anethum gravolens* (**dill**), *Asclepias incarnate* (**milkweed**), *Tropaeolum majus* (**nasturtium**), *Lobelia cardinalis* (**cardinal flower**), *Sedum* (**stonecrop**), *Echinacea purpurea* (**purple coneflower**), and *Viola* (**violet**).

Did you know …?

A butterfly's favorite color is purple.

—SOURCE: Attracting Butterflies & Hummingbirds to your Back Yard, by Sally Roth

A butterfly's favorite color is purple. Still, you'll want a garden with a spectrum of color. Once a butterfly seizes nectar, color is secondary. As for purple flowers, try *Echinacea* and *Buddleia davidii* "Black Knight" (**butterfly bush**), which has long flower cones (6 inches) that attract butterflies before the plant is in the ground. *Salvia leucantha* (**Mexican sage**) has 4-inch-long purple spikes that rise above its basal foliage.

Woody shrubs that provide feasts for butterflies include the *Passiflora* (**passion flower**), *Celtis occidentalis* (**hackberry**), and *Aristolochia* (**Dutchman's pipes**). Trees offering sources of food are *Quercus* (**oak**), *Ulmus* (**elm**), and *Salix* (**willow**). Trees, you say? If the tree's woody parts are soft enough, the butterfly will feed on its sap. *Quercus phellos* (**willow oak**) has a narrow leaf — a little wider than that of the willow — with pliable branches and tissue-like runners that readily fall onto the ground. The *Ulmus parviflora* (**Chinese elm**) has a tiny, serrated leaf that curls in cold weather.

In some cases, weeds make a tempting butterfly meal. If you see *Trifolium* (**clover**) or Anthriscus (**Queen Anne's lace**), leave it be. The latter has a beautiful white flower in the form of an umbel that sits at the end of a branch; five or six grow off each terminal branch. The flower resembles your grandmother's doily that sat under the flower vase. Queen Anne's lace looks like a wildflower, so many of them bunched together create a fuller, floral effect.

Don't forget the fruit in your butterfly garden. Fruit from any specimen will do, as long as it is ripe or — better yet — overripe. Tough or thick-skinned fruit won't work unless it has fallen from the tree and turned to mush. The *Malus* (**crabapple**) or *Ficus* (**fig**) tree should be on the menu, as well as *Vitis* (**grape**) or *Michelia figo* (**banana**). The latter two can be cut up in small pieces and placed in a shallow container in sunlight. The sunnier it is, the more ripe the fruit, and the stronger the fruit-juice aroma.

Death of a Plant

Leading causes of plant death are excess water, insufficient water, pests, disease, drought, prolonged dampness, invasive plants, deer, excessive fertilizer, fungi, football games, and a negative attitude.

Lethal Enemies

Deer can destroy plant tissue, leaving open wounds that invite infection.

Disease (such as scale, powdery mildew, rust, leaf spot, canker, blight, gray mold) can defoliate a shrub and spread from one specimen to another if untreated).

Dog urine has concentrated nitrogen, which "burns" plant tissues. Male *and* female dog urine contains nitrogen. Since female dogs squat, their urine coats the lawn. Male dogs, however, tend to mark vertical targets, including plants with branches.

Fertilizer used in excess will burn fibrous roots; natural minerals in the soil interact with roots in a non-invasive manner, unlike organic additives.

Football games and other physical incursions will uproot plants or break major branches.

Humidity can be deadly. Don't water late at night, and avoid splashing water on the foliage. Shrubs pruned to allow sunlight and air to pass through their branches will better retard fungus manifestation on humid nights.

Invasive plants such as *Lysimachia* (**loosestrife**) and *Euonymus alatus* (**burning bush**) rob a plant of its natural benefactors (e.g., sunlight, space for air circulation, water underground for roots).

Negative attitude—it's true! A positive attitude wills a plant to live. I've seen both attitudes in action and have the plants to prove both theories.

Lethal Enemies, continued

Pests such as the lacebug, woolly adelgid, borer, whitefly, aphid, leafminer, spider mite, sawfly, leafhopper, nematode, weevil, beetle, mealybug, webworm, slug, and vole can kill a plant; if untreated, pests will move to other plants.

Pollution (including fluorocarbons) is harmful to all living organisms. Pollutants also play a part in global warming. Access a plant directory online or a good plant book to learn which plants are more pollution-tolerant than others. (See "Resources" in the Appendix of this guide for recommended reference materials.)

Sun or shade in excess. Know what a plant needs. If the culture isn't right for a plant, it won't live. (See the "Sun vs. Shade" section of this guide.)

Water in excess will drown roots and prevent them from getting oxygen from the soil.

Water deficiency will prevent roots from obtaining minerals they need from the soil.

—*SOURCE: American Horticultural Society Pests & Diseases* by Pippa Greenwood, Andrew Halstead, A.R. Chase, and Daniel Gilrein

If it is May-September and a new planting is not watered every 1-2 days, it will be weakened. This could happen quickly, or the plant could limp along and die the following spring. During summer, if a newly installed hydrangea isn't watered *at least* once and perhaps even twice a day, it's in trouble.

If there is a new fall planting and the homeowner fails to water every 5-6 days until the first frost, the plant will be compromised. The same plant could die come spring if it is not occasionally watered throughout winter. If we don't have regular snowfall or rain in winter, a newly established plant is in trouble if not watered. Most homeowners don't water in winter, because the water to the spigot

has been closed. Still, it is essential to water newly planted specimens every two or three weeks despite a slowdown of photosynthesis. Some watering ensures a healthy plant come next spring. Moreover, if an extended forecast predicts temperatures in the upper 40s, open the water to the spigot on and irrigate by hose.

Horticultural oils and insecticidal soaps can revive a sick plant. The substances need to be applied in the appropriate area on the plant and at timed intervals. Too much fertilizer isn't healthy because even if it's organic, it is still isn't "natural" to a root zone like naturally occurring minerals in the ground. Plus, it burns roots. That's why backfill (existing dirt) is healthy for plant roots. It is malleable and moist without shocking fragile, fibrous roots with excessive or "foreign" nutrients.

If uninvited deer lope into your cherished azalea bed in the middle of the night, you can try two things. A commercially available spray-on repellant will help, as will nylon netting wrapped around each shrub. A decorative split-rail fence around your property could deter the interlopers as well.

Diseases and Pests

There should be a specific course in the USDA Landscape Design or Horticulture curriculum that deals specifically with this topic.

Did you know …?

Disease occurrence or prevention is not a uniform phenomenon. As one expert points out, "Whether it's disease-resistant fruit, deer-resistant plants or mildew-resistant leaves — remember, the term is not a guarantee. Nature didn't get the memo."

—George Blooston, gardening features editor, AARP Magazine (January-February 2008)

Obviously, the plants we studied in class were living. If a plant was dying, chances are the U.S. National Park Service removed it. So we hardly saw a "stricken" specimen.

To research the topic, I turned to *American Horticultural Society Pests and Diseases* (Dorling Kindersley Publishing, Inc., 2000). Pests and diseases are many. You can't remember them all, so use this book to figure out what is ailing your plants. Color pictures show you how the manifested problem. Steps to diagnose the problem and corrective measures are helpful.

What I do see often is *Euonymus scale*, a sap-feeding insect that appears as tiny white worm-like structures (male) on its namesake, Euonymus. It also strikes *Ilex* (**holly**), *Ligustrum* (**privet**) and *Buxus* (**boxwood**). The female is a brown-black and appears as a pear shape on the stem. It's important to leave space between shrubs so air can circulate and dry built-up moisture. When a shrub is dense, thin the inside branch growth to allow air and sunlight to penetrate and act as

drying agents. Insecticidal soap or horticultural oil are good remedies for scale. The ladybug beetle, which feeds on scale, is the cheapest defense.

Powdery mildew is another harmful fungus. I've seen it on *Syringa* (**lilac**), *Lagerstroemia* (**crape myrtle**), *Paeonia* (**peony**), and *Cornus* (**dogwood**). Severe cases will cause holes in the leaf. Damp conditions breed the disease. Watering late at night in the summertime is one way to encourage this filmy, whitewash to take up residence atop a plant's leaf. It also spreads by splashing rain. Mildew thrives in moist, humid conditions, as during our summer nights. If you see powdery mildew, remove the damaged leaf. If the entire specimen is affected, spray with a fungicide. As always, avoid overhead watering, which dampens the leaves, not the root zone.

Wooly adelgid used to be common. It looked like the inside of a cigarette filter, except that it is a dirty white, not brown. This commonly attacks the *Tsuga* (**hemlock**) tree. Insecticidal soap is the remedy.

Leaf spot is common on **rhododendron**. Caused by a fungus, it appears as brownish-purple spots and will kill an entire leaf. Remove affected leaves and spray with a copper fungicide.

Rust is common to *Alcea* (**hollyhock**) and *Mahonia.* It forms as yellow, orange, or brown spores. The cause is fungus, which thrives in humid, damp areas. A sulfur spray will help.

Slugs cause irregular-shaped leaf perforations. Underground, slugs attack tuberous plant roots, such as bulbs. Slugs favor *Hosta* (**plantation lily**), the garden salad of deer. Lay a couple of dishes with beer underneath the plant. If a slug crawls into it, it will die. Bits of glass are also effective, since a slug can't wiggle through the shards and live.

Squirrels love *Crocus* and *Tulipa* (**tulip**). It seems they also will eat the buds of the ash, maple, and beech tree. Sometimes durable netting

can be laid over the soil where bulbs have been planted. A squirrel may be deterred from digging through this "barrier" to get to the lunch counter.

Azalea lacebugs appear in spring/summer as white speckling on leaf tops. The bug sucks the sap from the plant, as well as the chlorophyll. Break off an infected leaf. Horticultural oil or insecticidal soap is recommended in severe cases.

English Garden

Next to the low-maintenance garden, this type is one of the most frequently requested. One online source, Wikipedia, noted, "The term *English garden* is not used in England, where (18th century) 'landscape garden' is preferred. … The canonical European *English park* contains a number of romantic elements. Always present is a pond or small lake with a pier or bridge. Overlooking the pond is a round or hexagonal pavilion, often in the shape of a monopteros, a Roman temple. Sometimes the park also has a "Chinese" pavilion. Other elements include a grotto and imitation ruins."

Regardless of what term is used, an "English garden" is one with imagination. You may find a bench, school desk with iron legs, or short section of unpainted, picket fence. It can be ornate, but it is sure to be unique. The focus isn't necessarily on trees and shrubs but on artistic elements, such as a pebble pathway or meandering flagstone walkway with *Alyssum, Asperula* (**woodruff**), *Phlox*, or *Soleirolia* (**moss**) planted in the crevices between stone pieces. Maybe there is a birdhouse atop a pole hidden behind *Wisteria floribunda* (**flowering wisteria**) foliage against a stockade fence or brick wall.

When in Maine once, I drove out in coastal country and stopped at a house near Sedgwick obscured by trees, grasses, and wild shrubbery. There was even a school bus parked in the back yard. A woman with a kerchief and smock was painting near her garage filled with pots and containers you would never find in the retail world. Come to think of it, this woman looked as if she'd never shopped, period. If ever she wrote a book on her craft, it could be titled, *An English Garden in the Making,* with the scene I beheld used as the cover photograph. This was the first place I'd ever seen a plant growing in an old boot. Other plants grew in a rusted tool box, a Mason Ball jar, a milk bottle, and, believe it or not, a baseball catcher's mitt. The English garden is also called a "cottage garden," described

by *Better Homes & Gardens Magazine* as "Random and carefree, filled with a combination of herbs, vegetables and clusters of mixed flower types." The magazine adds, "I've found each cottage garden is as different as the person who creates one."

A commercial Web site said this about cottage gardening: "It is the image of the quaint English thatched cottage with a riot of colorful flowers just outside the front door." To replicate this layout, you may want a collection of small, flowering perennials or even herbs bunched together to frame a door entrance or accent a picture window. Plant ideas here are vertical growers such as *Alcea* (**hollyhock**), *Digitalis* (**foxglove**), *Delphinium, Gladiolus* (**gladioli**), *Perovskia* (**Russian sage**), and *Antirrhinum* (**snapdragon**). Smaller, ground cover-type plants include *Nepeta* (**catmint**), *Convallaria* (**lily of the valley**), *Salvia* (**sage**), *Phlox*, and *Leucospermum* (**pin cushion flower**). And let's not exclude Scandinavian natives *Calluna* (**heather**) and *Lavandula* (**lavender**).

LeAnn, a customer of mine, has a patio that typifies the English garden. She has a hodgepodge of stonescape beneath her kitchen window, a folding table, tin watering can and homemade etagere. Another customer, Mary, has a hanging plate on her patio fence bearing the inscription, "Imagine." It's partially hidden by the rambling foliage of a *Lonicera* (**honeysuckle**) vine.

To learn more, access *The Englishman's Garden* by Alvilde Lees-Milne and Rosemary Verey (Godine, 1983). Chapters focus on the homes and gardens of typical English towns, such as Suffolk, Berkshire, Herefordshire, Wiltshire, and London.

Evergreens

Evergreens and conifers (cone-bearers) are forgotten in the residential landscape. Flowering trees and shrubs, perennials, annuals, and ground covers get the attention and new holes in the ground. But evergreens are graceful, dense in foliage, and keep their green and blue color. An evergreen shades a home, towers over a pitched rooftop, or surrounds a property in a natural, textured wrap.

Without them, the landscape would be barren and colorless. When winter's snows frost the branches, an evergreen shows its sturdiness, embracing the crystalline clumps until emerging sunlight melts them drip by steady drip. It's the evergreen that provides a year-round home to a nesting bird, whether for shelter from the cold or protection from a predator. Without evergreens, natural backdrops would not exist.

Here are some evergreens I like:

The *X Cupressus leylandii* (**Leyland cypress**) is used to screen an unsightly area or block the noise of nearby traffic. Drive around and you will notice stands of Leylands or *Thuja occidentalis* (**eastern arborvitae**). However, each can stand on its own. I have a Leyland in my back yard and an arborvitae in my front landscape. The Leyland is pointed at the top and bears flat fans of lace-like foliage. The branches are so nimble and soft to the touch, they wobble in the wind. Each branch off the main leader looks like a soft, giant arrowhead. The bark of the branches is cinnamon. You can tug on a Leyland branch, let loose, and watch it bounce back into place.

Cryptomeria yoshino (**Japanese cryptomeria**) has cord-like, twisted foliage that is Kelly green. The tight, spiraled foliage turns all the way to the branch tip. At the very end of the branches, the foliage elongates, is longer, and becomes wispy.

Did you know …?

Landscapers like to plant odd numbers of planted trees because it makes them more visually appealing.

Picea pungens (**Colorado spruce**) was a favorite of past generations. My father didn't garden in his short life but he planted three of these on the front lawn of his home in Schenectady, New York. I drove by seven years ago and they were proudly thriving, 50 years after going in the ground. The tree's stomas are white and, juxtaposed with the green needles, looks bluish from afar. The state tree of Colorado has stiff, prickly 2-inch-wide needles.

Ilex (**holly**) comes in many forms. *Ilex opaca* (**American holly**) grows in a rounded A-frame shape (40 feet tall and 12 feet wide). *Ilex glabra* (**inkberry**) is more of a shrub, with soft, oval leaves. It reaches only 6 feet tall and 8 feet wide. Its foliage is dense and grows in a pyramid shape. The *Ilex x* "Nellie Stevens" is a fatter specimen, reaching 12 feet tall with a little less spread. Its leaves are full and spiny, like those of the American holly. *Ilex x attenuata* (**Foster's**) is a narrower-grower, reaching 20 feet tall with only a 6-foot spread. Its habit lacks appeal, since it has gaps along its sides. However, the conical habit makes it suitable for a tall, narrow space or at the corner of a home.

The **Eastern arborvitae** has fanned foliage like the Leyland although it is smaller and narrower. Mine is an "Emerald Green" that only grows 6 feet tall and 2 feet wide. In the landscape, its shape resembles "The Simpsons" mom, Marge's hairdo. With its narrow habit, it tucks into inside corners. If your arborvitae isn't a dwarf, keep in mind that it can reach 20 feet tall with a 10-foot spread. Arborvitaes so big have little appeal for me, since the shape looks out of proportion to a building, fence, or other specimens in the landscape. It looks

lopsided, since foliage tends to jut out "here and there" along its sides. Keep in mind the color is lime, which makes it more bold.

Tsuga canadensis (**Canadian hemlock**) and *Pinus strobus* (**white pine**) tend to be over-planted. However, the hemlock has the cutest fruit of any conifer, with its fingernail-sized, soft, cinnamon cone. You can squeeze it to mush between your fingers. Foliage on the hemlock grows just a quarter-inch off the branch, resembling a fishbone. It is graceful since all elements are soft and small. By contrast, *Pinus strobus* has sleek, 5-inch-long needles that come five to a fascicle, giving the tree a wispy look. Its resin-covered fruit is the one typically used on Christmas wreaths. The cone, which grows up to 8 inches long, is stalked and light brown. It matures in the autumn of its second year.

Cedrus atlantica "Glauca" (**Atlas cedar**) might be the bluest specimen in the landscape, aside from *Picea pungens* (**Colorado spruce**). The Atlas cedar has short, stiff needles (1½ inches long) that radiate out from its stem. Branches are stiff and when planted near a façade it looks espaliered in youth. It has an airy habit and grows 50 feet tall and 35 feet wide and has a pyramid shape. Female cones require two years to mature, and become cream-colored and barrel-shaped (4 inches long and 2 inches wide), resembling porcelain eggs that stand on end in the upper half of the tree. Male fruit is a rust-colored, 2-inch-long catkin that looks like a caterpillar and grows on the lower half of the tree. *Atlantica* takes sun or partial shade but needs protection from wind and space to grow laterally. One can be seen on the corner of North Quaker Lane and Key Drive in Alexandria.

Cedrus deodara (**deodar cedar**) is an evergreen with soft green 2-inch-long needles. Its female and male fruit are similar in appearance and placement on the tree as *Cedrus atlantica. Deodara* is a graceful cedar with its pendulous branches that sort of sag at the very ends. A grove can be seen on South Four Mile Run Drive near Walter Reed Drive in South Arlington. The developers of the new condominium project conserved every one of them. Notice the "eggs" (female fruit), which can be spotted from 100 yards.

Fertilizing

When planting, use the existing soil if it's malleable. I installed five *Nandina domestica* (**heavenly bamboo**) "Firepower" dwarf plants in late November 2007 and disposed of the existing soil, which was rocky and clumped clay. No plant roots would have been healthy in that backfill. In its place, I added soft soil conditioner and some moist fallen leaves around a soft root ball.

A root ball prefers soft, moist soil, not piles of fertilizer which burns upon contact. In the new hole, spread some soil conditioner or an additive with nutrients in the form of nitrogen, potassium, and phosphorous. Peat moss is a healthy additive because of its feathery weight. I avoid adding manure to preclude burning.

As for **holly, azalea**, and **rhododendron**, I use the acid supplement HollyTone in the fall for nourishment. But at planting time, I don't.

Remember this: A wide enough hole, softly perforated root ball, two inches of the ball above the soil line, modest water, good drainage and malleable backfill spread around the rim of the new site — is a prescription for a successful and healthy planting.

Fertilizing may be necessary for farmers or greenhouse laboratories. Gardeners breeding a prize specimen may swear by fertilizer for their roses, lilies, or orchids. But where your back yard landscape is concerned, keep it simple and natural.

Specifically, fertilizers provide three major plant nutrients (nitrogen, phosphorus, and potassium), secondary plant nutrients (calcium, sulfur, and magnesium), and trace elements/micronutrients (boron, chlorine, manganese, iron, zinc, copper, and molybdenum).

What about manure? While it has fertilizer value, manure may contain drugs, antibiotics, hormones, or chemicals such as dewormers, disinfectants, pesticides, and herbicides. We know the material is processed but to what extent is it examined? Even if the manure contains minerals, we don't know the quantities of each one. Wikipedia says the word *manure* came from Middle English *manuren*, meaning "to cultivate land."

There are two main classes of manures: green manures and animal manures. Compost differs from manure in that it is decomposed organic material (which could include manure).

Most **animal manure** is excrement of mammals and poultry or plant material such as straw that was used as bedding for animals and thus contaminated with urine. **Green manures** are crops grown for the sole purpose of tillage. During plowing, fertility is increased when nutrients are returned to the soil. Some green manure crops are oats, rye, mustard, clover, winter field beans, alfalfa and buckwheat.

To learn more about this subject, see my chapter on "Minerals."

Field Trips for Plants and Wildlife

Walk down a leafy, wooded path and listen: Squirrels chatter, woodpeckers head-but their bills against the ravaged wood of an old stump, and ravens out-caw one another for the tree branch that overlooks the dining room below. The sun casts diagonal beacons in between the trees. Fresh, earthy smells clean your nose while crisp, cold air chills your eyeballs in winter. Trickling, foamy water washes over shiny rocks in a meandering stream. A big-bodied heron uses all its might to push off the sandy soil to take flight after a passerby disturbs its concentration. A sharp-shinned hawk streaks overhead, making no sound as its wide, speckled wings move it in a beeline to an unoccupied branch high above the forest floor.

Did you know …?

Tidal Basin, Jefferson Memorial, Washington, D.C.
Japan gave the United States 3,000 *Prunus x yedoensis* (**Yoshino cherry**) trees in 1912 as a humanitarian gesture to its friendly neighbor across the Pacific. The trees were planted along the edge of the Tidal Basin in Washington, D.C.'s West Potomac Park. When the trees naturally began to deteriorate, Japan donated another 3,800 trees to the United States in 1965.

Sakura is the Japanese name for "ornamental cherry tree" and is the national flower of that country. Wikipedia reports that Japanese poets and writers freely used "sakura" symbolism in their prose. Japan has offered the Yoshino cherry tree to its allies as a peace symbol. In addition to the Tidal Basin, the flowering ornamentals flourish at the remnants of the Berlin Wall. Japanese military units and police departments still feature the pinkish-white cherry blossom in emblems, flags, and insignias.

Atop a mushy, moss-covered log lying in still water, a turtle grabs hold to let the sun warm its shell and pebbly head.

Behold these everyday sights and sounds in these natural venues of the Commonwealth and Nation's Capital:

Air & Space Museum grounds in Washington, D.C.
Dodge the fanny packs and cameras to find low-lying groves of perennial flowers and a long line of lavender-flowering, *Vitex agnus-castus* (**Chaste tree**) in early summer along Independence Avenue.

Bartholdi Park in Washington, D.C. (near the U.S. Botanic Garden)
A black, cast-iron fountain in the centerscape is sculpted by Frédéric Auguste Bartholdi, who also crafted the Statue of Liberty overlooking New York Harbor.

Bon-Air Rose Garden/Bluemont Park in Arlington, Virginia
Exclusively roses, cultivated by Arlington County Parks staff.

Blue Ridge Parkway and Skyline Drive in Galax, Virginia
Route 29-211 slowly winds around the mountain; if you're lucky, you'll spot a deer or bear.

Caledon Natural Area in King George, Virginia
This Potomac River setting is home to bald eagles, bluebirds, and hummingbirds.

Dora Kelley Park in Alexandria, Virginia (Chesapeake Bay Watershed)
A local gem, home to hawks, deer, foxes, herons, ducks, rabbits, turtles, and frogs. The rock-funneled Holmes Run curves through the wooded park, and the well-appointed Jerome "Buddie" Ford Nature Center features informative exhibits and live animals.

Dyke Marsh and George Washington Memorial Parkway in Alexandria, Virginia
Bald eagles, geese, ducks, turtles, beavers, and herons roam alongside this 45-mph river road that offers commuters a soothing view of the sun-shimmered Potomac.

Green Spring Gardens in Alexandria, Virginia

An urban garden center with patio designs accented with hardscapes; labels help with plant identifications.

Huntley Meadows Park in Alexandria, Virginia

A wooden boardwalk leads you over a marsh and into the bird-filled woods; near Telegraph Road, south of the Beltway.

Long Branch Nature Center in Arlington, Virginia

A dense woodland with a nature center off Carlyn Springs Road; sometimes you'll find waterfowl on exhibit.

Kenilworth Park & Aquatic Gardens in Washington, D.C.

An array of waterfowl make their home among the pink, yellow, and white lotus and water lilies in the ponds. Ranger tours by appointment.

Prince William Forest Park in Triangle, Virginia

A 15,000-acre oasis with 21 miles of bicycle-accessible roads and hiking trails.

U.S. National Arboretum, Washington, D.C.

The Arboretum's 440 acres, overlooking the Anacostia River, feature plant specimens you'll never again see outside the park. *Diospyros* (**persimmon**), *Davidia involucrata* (**dove or handkerchief tree**), *Stewartia, Dahlia, Delphinium and Sorbus alnifolia* (**Korean mountain ash**) are but a few specimens I've only seen there.

State Arboretum of Virginia in Boyce, Virginia

Bluebirds compete for fence-post perches in this wide-open Shenandoah Valley setting near Winchester; the Boxwood Memorial Garden offers the largest variety of *Buxus* to be found in North America.

Four-Season Interest

This is my goal as a landscape contractor. I want flower and fruit showing in all seasons, even in the snows of January and February. A gardener needs to know when specimens bloom, when fruit sets, and what the sun/shade requirements are. If that's more research than you want to undertake, just call me.

First, let's look at winter options. *Jasminum nudiflorum* (**winter jasmine**) shows yellow flowers in late January. They are the size of a nickel and grow on long, evergreen stems amid tiny, oval leaves. If you have a raised bed, plant this on the outer edge and let the foliage strands tumble over.

Now that we're talking yellow, plant a *Forsythia x intermedia* (**border forsythia**) bush. These streaming branches are filled with yellow flowers come March. It's a striking color anytime but especially on winter's gray days. One more yellow-flowering shrub is *Mahonia bealeii* (**leatherleaf mahonia**). Atop the 5- to 6-foot-tall plant grow lemon-scented yellow flowers that cluster at the end of branches surrounded by foliage in March.

Don't forget *Chimonanthus praecox* (**fragrant wintersweet**), which offers cupped, fragrant transparent yellow flowers from December to February. They are borne on the deciduous branches on the previous summer's wood, so prune this shrub carefully so you don't sacrifice the winter bloom.

Now it's spring. You know **azaleas** are the main attraction come April. And right after that come the *Prunus x yedoensis* (**Yoshino cherry**), the same ones circling the Tidal Basin in Washington. Following the cherries are the *Malus floribunda* (**Japanese crabapple**),

which bears multi-colored (red, pink, and white) blooms. Its trunk is knobby, appearing slightly contorted as your eye moves up its length, and the fruit is an eye-grabbing mauve-orange in fall. It resembles the leafless *Platanus occidentalis* (**sycamore**) tree in winter, with silver-dollar-sized fruit borne singly that hangs on 2-inch-long stems. By contrast, the *Platanus x acerifolia* (**London plane tree**) mimics the sycamore in appearance but bears two fruits per stalk. Then again, if you have a wide-open landscape, a sycamore tree can be beautiful in winter, with its dangling fruit and whitish bark which reflects the bright sunshine. Come upon a sycamore tree from a distance in winter, and its white and gray exfoliation resembles a *Betula* (**birch**) tree.

When summer arrives, you have *Hydrangea macrophylla* (**bigleaf hydrangea**), *Syringa* (**lilac**), *Lonicera* (**honeysuckle**), and *Buddleia* (**butterfly bush**), to list a few.

In the fall, *Hydrangea quercifolia* (**oakleaf hydrangea**) blooms turn pinkish-while its foliage deepens to reddish-purple. *Liriope* (**lilyturf**) flowers from summer into fall before giving way to shiny, black fruit in winter. *Nandina domestica*'s (**heavenly bamboo**) flower appears as a tiny, white elliptical with yellow center. It blooms in May and again in fall.

When winter approaches, you have 250 species of *Camellia japonica* (**Japanese camellia**) from which to choose. Camellia flowers in red, pink, and white (some petals are multi-colored) from November to March. They bloom on and off throughout the winter! The camellia's center eye is yellow, featuring stamens and pistils which protrude like fashionable eyelashes. The leaf is forever lustrous, evergreen, and curled to a point at its center terminal.

Having flower, fruit, leaf variegation, or ornamental grass plumes wave in the winter wind like corn stalks produce a four-season show. So what if winter is cold and windy? Knowing plant versatility in our Plant Hardiness Zone (6b-7) means your garden won't be dormant while you celebrate the holidays, prepare your taxes, or clean out the closets.

Fragrance

The **magnolia**'s ivory, cup-shaped bloom has a sweet, heady scent. Even sweeter are the summer white flowers of *Sarcococca hookeriana var. humilis* (**dwarf sweet box**). The flowering plant works well as a ground cover in shade. *Clethra alnifolia* (**summersweet**), with its stunning ivory flower in summer, also likes deep shade.

Another show-stopper is *Viburnum carlesii* (**Koreanspice viburnum**). You can smell this bloom 50 feet away in spring. This is yet another an ivory flower growing on upright branches in the full sun. Rivaling *carlesii* is the *Gardenia jasminoides* (**gardenia**). Its flowers are the diameter of a quarter and what a scent! This plant doesn't like our winters, so wrap burlap around the shrub in early December.

Mahonia bealei (**leatherleaf mahonia**) offers tiny clusters of yellow flowers redolent of lemon in February and March. The blooms appear at the top of the plant, nestled inside a cluster of sharply pointed leaves.

If you want fragrance in tree form, try a *Syringa vulgaris* (**common lilac**). Lilacs need sun and produce white, pink, or lavender flowers in late spring and early summer. The leaves are pale green but are heart-shaped. Lilac is multi-trunked and wide, so you need an open, sunny location. In a windstorm it becomes a collector of plastic bags and stray paper at its leafless base.

If you have a modest space in the shade, buy a *Pieris japonica* (**Japanese pieris**). The ivory, bell-shaped flowers hang in panicles from lacy, maroon stems in early spring and sometimes, in fall. An established *Pieris* can take sun but a young plant needs shade. The leaves of *Pieris* are lime green and radiate out from the end of the branch stem.

Another flowering ground cover is *Convallaria* (**lily of the valley**). Its flowers resemble those of the *Pieris* — bell-shaped, white, and pendulous. This plant is a ground cover, reaching no more than 10 inches tall. It becomes heavily rooted and may need dividing.

Daphne odora (**winter daphne**) has a pinkish-purple flower with a sweet smell in February and March. This evergreen reaches 4 feet tall and 3 feet wide. It's a fragile grower in our area, liking shade but not bitter cold. I brought mine in last winter and it flourished for a week before defoliating and dying. The plant probably was shocked by the temperature change.

Chimonanthus praecox (**fragrant wintersweet**) matures at 15 inches tall and 12 inches wide. The inch-wide, cup-shaped flower is a transparent yellow with a purple throat that shows in January–February. You can cut some flowering branches and bring them inside for fragrance. Wintersweet's leaf is elliptical and lanceolate.

Fruit

Almost every plant bears fruit, as it manifests from the ovary. Fruit is either significant, as with *Ilex* (**holly**), or microscopic.

Rosa (**rose**) grows on leggy, stiff branches that stab you at close range. The leaves turn a yellowish-brown in winter. There is no basal foliage to a rosebush, forcing you to look only thorny "legs." But in autumn you'll notice fruit or "hips," which are pomes. It resembles the pome of a *Malus floribunda* (**crabapple**) tree. The first time I noticed a hip was in Rockport, Maine, after I had walked to the edge of a bay cove. There was a grouping of rosebushes growing out of the sand and splashed by saltwater. No flowers greeted me but the scraggly shrub was decorated with nickel-sized, round, mauve balls.

One day, I saw a crabaapple tree filled with fruit and cedar waxwings. I walked right by the tree and not one bird moved. Earlier that week, I saw 10 waxwings lying on the ground. They had eaten the fruit of an *Ilex opaca* (**American holly**) and become intoxicated from the juice. When they saw the landscape's reflection in a window pane, they flew straight at the glass.

Mockingbirds aren't fussy when it comes to fruit. I've seen them dine on the fruit of a *Cotoneaster apiculataus* (**cranberry cotoneaster**), *Cornus* (**dogwood**), and *Pyracantha* (**firethorn**). Cotoneaster is a small evergreen shrub that bears little white flowers in May and red, round fruit in fall. *Ilex cornuta* "Burfordii" (**Chinese holly**) is the most prolific fruiter among the hollies. The leaves are lime-green and rigid and the shrub can be pruned to a modest shape. *Nandina domestica* (**heavenly bamboo**) has clumps of shiny red fruit that hang on mature specimens. I'm not sure whether birds prefer juniper fruit. It is pale blue and clings on branch tips inside the lace-like foliage. It is used as a diuretic and to flavor gin, says Wikipedia, so hopefully birds will lay

off the hard stuff and avoid those windows. The fruit has a "piney" odor and also is used for interior air fresheners.

Did you know …?
According to Wikipedia, the modern-day *Funk & Wagnalls*, The Declaration of Independence was written in pokeberry juice, and Civil War soldiers penned their letters in pokeberry ink.

The messiest fruit I've encountered is *Phytolacca* (**poke**). Remember the song, "Poke Salad Annie," which Wikipedia says was sung by Tony Joe White? Poke's stems are burgundy and the fruit is deep purple. They squish easily and stain, so watch out! Wikipedia also says birds eat pokeberry but aren't affected by the toxin since its seeds have hard shells that remain intact through the avian digestive system. Poke's leaves can be boiled for use in a salad.

The fruit of the *Cornus kousa* (**Japanese dogwood**) is unique because it's as big as a quarter and pinkish-white. Fruit from the *Cornus florida* (**flowering dogwood**) appear as shiny, red drupes that form in fall and persist until November in our area but into February in the deep South. Michael A. Dirr, author of the principal textbook used in the USDA Graduate School Landscape Design curriculum, reports 43 species of birds have been spotted feeding on *Cornus florida* fruit. The fruit of the *Aucuba japonica* (**Japanese aucuba**) resembles a red jellybean. It grows only on the female plant, ripens in October, and lasts until spring. Up to five fruits form on one leaf axil and grow inside the shrub. Remember to plant a male *Aucuba* nearby (within 50 feet) to assure pollination/fruiting. This plant is "dioesious," meaning it takes two plants to pollinate. No *Aucuba* has both male and female sex organs. A "monesious" plant has both sex parts on the same plant. Then there is the parthenocarpic process, where fruit develops without ovule fertilization, as with the banana and pineapple plants.

Come fall, the multi-stemmed fruiting of *Viburnum setigerum* (**tea viburnum**) almost dominates the habit of the 8- to 10-inch-tall shrub.

Clusters of abundant red fruit hang 2-3 inches from the stem to the point where branches droop. The fruit is borne in October and persists into early December. Its fruit is an egg-shaped drupe and the reddish color is a bit translucent.

The multi-stemmed, bushy shrub is leggy and squat. The leaf is typical of *Viburnum* — lance-shaped, pubescent (the Latin *seti* means "hair") and prominently veined with a "crumpled" surface in fall. It turns reddish-purple in autumn before falling from the stem.

If you favor *Viburnum* for its creamy-white flower or strongly fragrant flower, buy this specimen, for it is the most striking of the fruited *Viburnums*. As one might guess, the leaves from *V. setigerum* were once used in making tea.

The "Aurantiacum" cultivar bears orange fruit.

As with any viburnum, *V. setigerum* appreciates full sun but also thrives in part shade. The plant is monesious and also pollinated by insects. It is native to eastern Asia and western China. Birds will perch on the shrub to eat the berries before winter arrives.

Tea viburnum shares the same family (*Caprifoliaceae*) as *Lonicera* (**honeysuckle**). "Capra" is a female goat in Greek, thus the symbol for the Zodiac sign, Capricorn. However, "capricious" could also describe the habit of tea viburnum, whose fruit is whimsical, erratic and free-flowing off the branches.

Global Warming

Scientists report global average temperatures rose 1.4°F in the last century, with most of the degree spike in the last 30 years. The Union of Concerned Scientists (UCS) says most of the warming was caused by heat-trapping emissions from human activities. The UCS adds this "human intervention" has three times the impact on Earth's climate than it did in 1950.

Despite accounting for short-lived cooling from volcanic events and aerosol pollution, heat-trapping emissions *outweigh* other climate drivers, according to a report by the Intergovernmental Panel on Climate Change (IPCC). Carbon dioxide (CO_2) from fossil fuel burning and land clearing/excavation hovers in the atmosphere, where it "blankets" the Earth's soil and water surfaces, thus keeping them warm. As a result, 2001 levels of carbon dioxide in the atmosphere were higher than any other time during the last 650,000 years, says the IPCC.

The **greenhouse effect** occurs when infrared radiation in the atmosphere warms the Earth's total surface. This term is misleading, since the warming of air within the glass perimeter of a greenhouse has nothing to do with the heating of the outer atmosphere. The "heating element" is the gas that traps heat near the Earth's surface.

Fossil fuel burning, cement production, and deforestation have increased the carbon dioxide (CO_2) concentrations in the atmosphere from 313 parts per million (ppm) in 1960 to 375 ppm in 2005, says the IPCC. These elevated CO_2 levels increase the global mean temperature.

Four greenhouse gases enter the atmosphere due to human activity, according to the United States Environmental Protection Agency (EPA):

- **Carbon dioxide** (CO_2) enters the atmosphere through burning of fossil fuels (oil, natural gas, and coal), solid waste, trees, and wood products, and also as a result of chemical reactions (such as in cement manufacturing). CO_2 is removed from the atmosphere by plants during photosynthesis in exchange for oxygen.
- **Methane** (CH_4) is emitted during production of coal, natural gas, and oil. Methane also is emitted from livestock and the decomposition of organic waste in landfills and dumps.
- **Nitrous oxide** (N_2O) is emitted during agricultural and industrial activities, as well as during fossil fuel and solid-waste combustion.
- **Fluorinated gases** such as hydrofluorocarbons and sulfur hexafluoride are greenhouse gases emitted in industry exhaust.

We contribute to greenhouse gas emission every time we drive our car, turn on the air-conditioner/furnace, or fail to recycle plastics. Humans do have control over the amount of greenhouse gas emitted into the atmosphere. With lifestyle changes, we can mitigate global warming. Despite the increase in greenhouse gas emissions, newer and cleaner technologies are utilized to reduce its negative effect.

Sullivan's Landscaping does its part by planting. Plants remove CO_2 from the air through "carbon sequestration." Planting trees, re-forestation and sustaining existing forest cover slows greenhouse gas production.

The world's oceans have absorbed about 20 times as much heat as the atmosphere over the past half-century, leading to higher temperatures in surface waters and in water 1,500 feet below the surface.

How You Can Fight Global Warming

1. Change five lights. Replace incandescent bulbs in your five-most frequently used lights with bulbs that have the ENERGY STAR. If every U.S. household took this one simple action, we could prevent greenhouse gases equivalent to the emissions from nearly 10 million cars. Former President Bill Clinton, a guest on Martha Stewart's program New Year's Day 2008, advocated using the fluorescent light bulb. Stewart said computer printers with the ENERGY STAR label, which print on both sides of the paper, helps reduce global warming.

2. Use ENERGY STAR products. Look for ENERGY STAR-qualified products when purchasing lighting, electronics, heating and cooling equipment, windows, and appliances.

3. Heat and cool smartly. Regularly replace furnace filters and have your furnace and cooling unit tuned annually to save energy while reducing greenhouse gas emissions.

4. Insulate your home. Seal air leaks around windows with sheet plastic in winter. Add insulation to your attic and basement—areas of greatest air leaks. Seal ducts in attics and crawlspaces to improve energy efficiency. Eliminate drafts around door frames, skylights, and solar panels and you'll reduce greenhouse gases.

5. Use green power. Green power is environmentally friendly electricity generated from renewable energy sources such as wind and the sun. There are two ways to use green power: Buy it or modify your house to generate your own.

How You Can Fight Global Warming, continued

6. Reduce, reuse, and recycle. Recycle newspapers, beverage containers and paper. Purchase products in recyclable containers.

7. **Be green-minded in your yard.** Use a push mower, which consumes no fossil fuels and emits no greenhouse gases. (This conserves fuel and your hearing.) If you must use a motorized unit, make sure it is a mulching mower that cuts up grass clippings on the lawn. Composting clippings reduces refuse sent to landfills, thus reducing greenhouse gases.

8. Use water efficiently. Municipal water systems require energy to purify and distribute water to households. Products bearing EPA's "WaterSense" label save water. Other tips: Water when necessary and only when the temperature is cool to slow evaporation from the root zone and retard fungus manifestation. Turn off water while shaving or brushing your teeth. Don't use the toilet as a waste basket. Fix leaky toilets.

Ground Covers

Ground cover (GC) is a diminutive yet decorative gap-filler among larger shrubs in a landscape. It has a compact growth habit (1 feet tall, 1 inch wide). I call them accents. Attractive in their own regard, their primary purpose is to complement the layout of the main garden, guard against erosion and line driveways, walkways and patio perimeters.

GCs can be prostrate-growers. *Vinca minor* (**periwinkle**), *Hedera* (**ivy**), *Ajuga reptans* (**bugleweed**), *Euonymus fortunei* (**wintercreeper euonymus**), and *Pachysandra terminalis* (**Japanese pachysandra**) are examples. These GC root systems grow laterally underground by stolons.

Most GCs are evergreen and can be planted where tree roots are exposed and larger root balls can't fit. GCs and annual plants can be used interchangeably. GCs are perennial, while flowering annual plants die at the second frost in December. GCs also require less maintenance, since annual plants need to be uprooted and pitched when they die. Gardeners love color and don't mind planting **petunia, marigold**, **impatiens, begonia** and other annuals in April. Annuals present color while GCs offers evergreen or variegated foliage.

On sunny slopes, the most durable GC is juniper. *Juniperis horizontalis* (**creeping juniper**) lies on the ground like a bluish-green fan, bearing long, cinnamon-colored stems that stretch out and hold bluish foliage that lays on the soil. This retards erosion with strong roots and heavily foliated "arms." Bishop Ireton High School's Duke Street-facing landscape is a good example of this. There's no color or verticality but erosion is tempered and the slope is more appealing than one with grass or dying brown shrubs that lost water due to runoff. Keeping one prostrate plant pruned from another keeps the landscape clean and untangled. I first planted this in 1997 for a customer, Ellen in Del Ray. Today, its bluish-green arms stretch out in all directions, covering the barren mulch.

More vertical GCs such as *Sarcococca hookeriana var. humilis* (**dwarf sweet box**) and *Liriope* (**lilyturf**) provide a fuller look, especially if liberally planted. These plants will grow vertically, especially *Liriope*.

Not every GC is "evergreen." *Nandina domestica* "Firepower" has reddish foliage in winter while "Gulf Stream" has a bluish-green cast. *Lecouthoe fontanesiana* (**drooping lecouthoe**) grows 1½ feet tall and 2 feet wide, offers pale white flowers in spring, and keeps a free-flowing, yet somewhat contained habit. Some leaves are maroon and others are variegated in swirls of ivory and pink. The plant's stems are even pink. And it's "evergreen." *Lecouthoe*'s habit has pizzaz but doesn't compete for attention with the larger garden shrubs.

There is even a grassy GC. *Ophiopogon planiscapus* "Nigrescens" (**black dragon**) grows in small clumps. It likes sun and looks like a miniature "Cousin It," (a la The Addams Family) with drooping foliage that touches the soil. *Ophiopogon japonicus* (**mondo grass**) is a greenish tufted grass that is more dense than "Nigrescens."

Hedera (**English ivy**) is perhaps the most invasive plant apart from *Ampelopsis brevipedunculata* (**porcelain berry**), *Parthenocissus quinquefolia* (**Virginia creeper**), or *Veratrum viride* (**Indian poke**) in the landscape. Although I don't care much for ivy, it is suitable in certain conditions:

- If you loathe grass and prefer ivy, just keep it clipped along the edges of its designated area. Then, create a 6-inch-wide trench that is either bare dirt or mulched. This border up against a sidewalk or lawn presents a neat, clean appearance.
- Keep dead branches and leaves from lying on top of the ivy bed. Rake the leaves down, inside the ivy or remove them if they're lying in bunches. Dead leaves can serve as organic mulch. There is a corner house on Ridge Road Drive near Braddock Road in Alexandria that has this look. Despite no "plants" out in the landscape, the lawn and ivy beds are quite attractive.

Herbs

Herbaceous means "non-woody." Herbs have delicate, soft stems that grow from seed. Their foliage wilts and turns brown after the flowering period.

The leaf of the herb plant flavors food, while the seed, root, or fruit produces spice used in cooking. The woody (so to speak) part of an herb plant can be used for medicinal purposes. *Hypericum perforatum* (**St. John's wort**) has been used to treat depression. But an herb medicinally used in large quantities can damage the liver, so says Wikipedia.

In foods, herbs can be a substitute for salt (NaCl), a preservative derived from saltwater or rock. Made up of 99% sodium chloride, salt causes the body to retain water and increases blood pressure. Like vegetables, herbs are more flavorful when fresh-picked.

Scatter herbs like perennials in a shrub garden and the landscape becomes cluttered. Herb foliage is stalk-like, bushy, and bears smallish flowers. Its appearance (leaf texture, habit, and size) differs from that of shrubs, small trees, ground cover, and flowering annuals.

Herbs are either perennial or biennial. Biennials need two years to mature so they need to survive one winter. Most herbs are grown from seed, except for tarragon and mint. D.R. Bienz, author of *The Why and How of Home Horticulture,* says it depends on the herb as to when (summer, fall, winter) the "crop" should be harvested.

Herbs grown for their seed (dill, caraway) are cut and laid on plastic to dry before removing the nonedible chaff (covering). Leafy herbs should be cut and laid on newspaper to dry. Keep the 'harvest' in a dry location where they won't get damp.

Perennials

Petroselinum crispum (**parsley**) is an annual with flat, curled leaves. It garnishes meat, salad, and soup. Harvest in late fall in its first growing season and in early spring of the second season. (Actually, parsley is a biennial herb but is listed here for a reason.)

Salvia officinalis (**sage**) grows 2 feet tall and sprawls. Its leaves flavor chicken, meat, gravy, and Thanksgiving stuffing. The tubular, two-lipped, pale lavender flower grows laterally off a central stem in late summer/early autumn. Its aroma comes from the gray-green basal (low) foliage. Cut the shoots before the plant blooms. Six- to eight-inch leaf lengths can be cut off twice during the year.

Rosmarinus officinalis (**rosemary**) has aromatic silvery leaves filled with oil that flavors meat and pasta. It grows in a shrub-like, dense habit and tolerates heat. The plant has a tubular, lavender flower in summer. The leaves can be harvested at any time.

Thymus vulgaris (**thyme**) has a wiry habit bearing a tubular flower in summer in pink, purple or white. Plant some in the spaces between the flagstones of your patio. When you step on its foliage, the plant tosses a fragrance your way. Cut it to flavor meat and egg. Separate the foliage from the woody stems and keep dry.

Did you know …?

Parsley, sage, rosemary, and thyme were popularized by Paul Simon and Art Garfunkel, whose version of "Scarborough Fair" was featured in the 1966 film, "The Graduate." Scarborough is an English coastal town that hosted a "fair" from mid-August to October 1 beginning in Medieval times. Merchants from as far away as Denmark and Holland would cross the English Channel to market their harvests and crafts at the culinary carnival

— SOURCE: Wikipedia

Lavandula augustifolia (**lavender**) has a purplish, two-lipped, tubular bloom that flavors dessert. It is used in perfumes and in sachets to repel moths in clothes closets and dressers. Lavender serves as its own aromatic sachet. Cut the branches after the flowering. To use lavender in a "potpourri" sachet, tightly wrap the bunched cuttings in thin burlap and tie the top with a colorful ribbon.

Origanum vulgare (**oregano**) flavors hamburger and veal as well as Italian dishes. Wait until the flower blooms before harvesting the leaves. If the herb cultivar does not flower, then harvest in late spring.

Mentha spicata (**spearmint**) sprigs are used in teas. The leaf oil is used for candy, toothpaste, and gum. Spearmint foliage is bright green and fills the garden with fresh, clean fragrance.

Melissa offinalis (**lemon balm**) leaves are used in teas. The leaf oil is used in perfume. It will grow in poor soil and thus can become invasive in the herb garden. Tender shoots harvested in the morning are fresher.

Artemesia dracunculus (**tarragon**) has a pungent licorice flavor and is used in salad. Leaves and young shoots can be harvested more than once during the growing season.

Allium schoenoprasum (**chives**) is listed last, since my stomach never embraced the *Allium* family. It has clumped, grass-like foliage that bears a purple flower bloom resembling a pincushion. Young leaves flavor salad, soup, or an omelet. For potent flavor, harvest the leaves before the flower blooms in early-to-mid-spring.

Biennials

Ocimum basilicum (**sweet basil**) flavors chicken, salad, eggs, and seafood. Harvest it before the first frost in early December since freezing kills the flavoring compound in the plant. Its fresh leaves can be harvested any time.

Anethum graveolens (**dill**) tendered with a cucumber creates the "dill pickle." The leaf also flavors meat and fish. Too-dry leaves lose their flavoring potential. Leaves can be harvested at any time.

Foeniculum dulce (**Florence fennel**) seeds have a licorice flavor, thus the Spanish, *dulce* (sweet) or Latin, *dulci*. Cut the seed, thresh it, and store the chaff in bags. The chaff flavors pastry, candy and bread while the leaves liven up a salad. Fennel foliage, a feathery burgundy and beige, is the prettiest in the herb garden. Flat, yellow flower umbels show in summer.

History of Plants

I wonder what Christopher Columbus saw when he looked around the Caribbean shores in 1492. What was growing on the Canary Islands, Bermuda, Haiti, and Cuba and how did plant life differ from those in his native Portugal?

Likewise, what kind of plants did John Smith notice around the Jamestown settlement in 1607? And although Neil Armstrong was aware of the biologic void on the Moon's surface when he landed there in 1969, he still must have been looking around the dimpled sand in search of that one, tiny weed or wildflower. Had he seen one of those, news of his lunar landing would've become almost secondary.

Most of our landscape plants originated from Asia and arrived here by ocean vessel. According to the Web site *www.plantsandus.org.uk/history.htm*, cultivation of grain in America turned settlers into farmers, while wild-growing spices became a commercial chip in trading with the Old World. It might have been Columbus's search for ocean spice routes near "Florida" that led to his discovery of America.

Did you know …?

Plants have figured prominently throughout history. They have long been used for medicinal purposes to treat depression, headaches, nausea, rashes, and fever. Foliage chlorophyll and fruit juice were used to concoct death tonics. The Greek philosopher Socrates drank hemlock when sentenced to death. The Roman emperor Claudius met his death from ingestion of toxic mushrooms. The slave trade emerged when the sugarcane plantations of the West Indies needed harvest labor. The crippled potato crop factored in the Irish famine in 1840, which led to people immigrating to America.

—SOURCE: Wikipedia

Next to spice, tobacco was *the* commercial crop in Colonial America. John Rolfe farmed tobacco and shipped it to England. His brand — *Nicotiana rustica* (brown gold) — was disliked by British royalty, according to Wikipedia. Rolfe then brought from Bermuda *Nicotiana tabacum* seed, which fared better on the trade market. Tobacco soon became Virginia's currency. By the time Smith and his wife, Pocahontas, left America for England, the explorer was a wealthy trader. When Rolfe returned to Jamestown following Pocahontas's death, he continued to farm the crop.

Long before Rolfe sampled tobacco leaves, the first fossil of a macroscopic land plant was formed in Ireland. It was 425 million years old and consisted of small branches, according to Wikipedia. It was called *Cooksonia* and named after Isabel Cookson, who collected plant fossils. The plant had a stem and was topped with spheres that housed spores. The plant had no leaves, flowers, or seeds. Its roots were horizontal stems that grew by root hairs. Species of *Cooksonia* were found in Wales, Scotland, England, Czechia, and Canada. A land plant breathes in carbon dioxide (CO_2) and emits oxygen during photosynthesis. But stomata (or pores) evolved in plants, enabling them to transpire oxygen and take in CO_2.

The oldest known seed plant in America originated in West Virginia, It is *Elkinsia polymorpha* (**seed fern**), from the Devonian Period of the Paleozoic Era. Another early fossil was called *Archaeosperma*. During this period (up to 416 million years ago), the first seed-bearing plants colonized across drier lands to form forests.

Was the seed fern's origination linked to the formation of the Appalachian Mountain range in the Ice Age? During the Wisconsin Glaciation 70,000–10,000 years ago, ice sheets extended to 45°N latitude. West Virginia's northernmost latitudinal line lies at 38°. This glaciation carved the Great Lakes and Finger Lakes as well as smaller lakes in Minnesota and Wisconsin. The old Teays River drainage system was radically altered and largely reshaped into the Ohio River drainage system, which forms the northern border of West Virginia.

Latin Terminology

Latin is the universal language to identify plants. Visit any plant nursery in the world and the nomenclature will be in Latin. Common names may not be listed, since English may not be spoken in a given country. Moreover, common names can change and one plant can have more than one common name. So, if you're familiar with Latin names for plants, you'll be able to purchase the exact genus and species you want without confusion. When it comes to cultivars or varieties, they are listed in either Latin or English.

If you're plant shopping in Jakarta for a **mountain laurel**, you need to look for *Kalmia latifolia.* When you locate that plant tag, you will know you've found **mountain laurel**.

The Latin name has two parts — the genus and the specific epithet. In some cases, a third term is used: *Chamaecyparis pisifera* "Filifera," for example, is a specific cultivar of **Japanese falsecypress**. Cultivars' availability at the nursery depends on space. Each plant species has numerous cultivars. The genus *Rosa* has 200 species but *tens of thousands* of hybrids and cultivars, according to Michael A. Dirr's *Manual of Woody Landscape Plants.* He adds that *Camellia japonica* (**Japanese camellia**) has over 2,000 cultivars.

Carolus Linnaeus (1707–1778), a Swedish botanist, is known as the "father of modern taxonomy." Linnaeus' names for living organisms became universally accepted in the scientific world. From 1735 to 1738 he lived abroad, where he studied and published his first book on plant taxonomy, *Systema Naturae* in the Netherlands. In the 1740s he journeyed through Sweden to classify plants and animals. In the 1750s and 1760s he classified animals, plants, and minerals while publishing several volumes.

Here are a few translations:

- *Quercifolia*: from the Latin "*quercus*" (oak) and "*foli*" (leaf)…thus *Hydrangea quercifolia* (**oakleaf hydrangea**)
- *Magnolia stellata* (**star magnolia**): from "*stell*" (star)
- *Daphne odora* (**fragrant daphne**): from "*odor*" (fragrant)
- *Callicarpa japonica* (**Japanese beautyberry**): from "*calli*" (beautiful) and "*carpa*" (seed)
- *Gladiolus* comes from "*gladi*" (sword), a reference to the leaf shape
- *Miscanthus sinensis* "Gracillimus" (**Chinese silver grass**)**:** this cultivar name comes from "*gracil*" (slender), referring to the needle-like shape of this ornamental grass blade
- *Arborvitae* is the tree of life, from "*vita*" (life) and "*arbor*" (tree)
- *Buxus sempervirens*: from "*Buxus*" (**boxwood**), "*semper*" (always), and "*virens*" (green) — in other words, evergreen, which a boxwood is
- Chlorophyll, crucial for photosynthesis, gets its name from "*chlor*" (green) and "*phyll*" (leaf)

Leaf Variegation

Color in the landscape appears beyond flower and fruit. Leaves can be maroon, pink, white, cream, yellow, and blue. Leaf variegation shows in creams, whites, yellows, and pinks as swirls or along its edges. Some variegation is spotted.

Burgundy is found on the leaves of these plants: *Berberis thunbergii var. atropurpurea* "Rose Glow" (**Japanese barberry**) and *Lecouthoe fontanesiana* (**fetterbush**). These leaves are purplish: *Rudbeckia* (**black-eyed Susan**), *Ajuga reptans* (**bugleweed**), and *Nandina domestica* (**heavenly bamboo**) "Plum Passion," and again, *Lecouthoe*.

Bluish is found on *Baptisia* (**false indigo**), *Juniperis* (**juniper**) "Blue Pacific," "Blue Rug," and "Blue Star," *Picea pungens* (**Colorado spruce**), and *Cedrus atlantica* (**Atlas cedar**).

Cream can be seen on *Leucouthoe*, *Hosta* (**plantation lily**), *Euonymus, Azalea*, *Miscanthus sinensis* (**Chinese silver grass**), *Hydrangea, Aucuba japonica* (**Japanese aucuba**), *Cornus alba* (**variegated tatarian or red twig dogwood**), and others.

Fall offers many shades of color. *Forsythia x intermedia* (**border forsythia**) becomes purplish, as does *Hydrangea,* in autumn. Then there's red. *Nandina*'s leaves turn red in cold weather as do the leaves of *Euonymus alatus* (**burning bush**). *Photinia x fraserii* (**Fraser photinia**) doesn't wait for fall. Its new foliage is copper-red while new growth on the *Nandina* varies from red to mauve.

Variegation occurs when pigment is absent from the leaf. This area manifests as white, cream, or yellow. With the plant devoid of chloroplasts and thus chlorophyll, photosynthesis is slowed. *Euonymus* is a genus with many variegation forms. *Aucuba* has cultivars with yellow spots on the leaf — as if a brush with yellow paint had been

flicked onto a green leaf. A *Euonymus* ground cover has pinkish swirls on its tiny, oval leaf. *Liriope muscari* (**lilyturf**) has a variegated species that is just as much whitish-yellow as it is green. *Miscanthus sinensis* (**Chinese silver grass**) has many variegated forms. "Gracillimus" has a fine, white vein down the middle of its narrow blade. As the name suggests, "Zebrinus" has horizontal, yellow patches across the leaf every few inches. *Cornus alba* "Aurea" (**tatarian dogwood**) is a mounded shrub with pendulous branches bearing white variegation on a light green leaf. Its stems are deep red and in winter; all you see is a cordovan network of branches in a coffee-cup shape.

Daphne odora "Aureomarginata" (**winter daphne**) offers a leaf rimmed in yellow that complements a reddish-purple flower. A variegated *Azalea* is striking with a small, oval leaf is rimmed in a white band. *Lecouthoe* (**fetterbush**) has swirls of cream and pink variegation that fit its free-flowing branches. If you love yellow, try a *Chamaecyparis pisifera* "Filafera" (**Japanese falsecypress**). It has lacy fans of foliage dabbed in yellow that droop to the ground. It looks "golden" when you step away. A bus stop on South Utah Street in South Fairlington is flanked by these shrubs. It accents an otherwise boring shelter and adds color to the mini landscape.

Life of a Plant

Photosynthesis is when a plant or bacteria converts solar energy into chemical energy to sustain life. Chlorophyll, the green pigment in the leaf, absorbs sunlight, uses carbon dioxide (CO_2) from the air, and water from the soil to manufacture carbohydrates and sugars. Some of those starches remain in the leaf while others are transported down through the stem into the plant's root.

Chemically speaking, here's the equation that keeps our landscape green and thriving:

$6CO_2 + 12H_2O$ + sunlight —> $6O_2 + C_6H_{12}O_6 + 6H_2O$

or...

carbon dioxide + water + sunlight —>
oxygen + carbohydrate + water

The photosynthetic process is reversed when we burn wood. Carbohydrates are broken down to produce CO_2, water, and energy. Photosynthesis depends directly on intensity of sunlight and degree of temperature. In autumn — when days are shorter, temperatures are cooler and water is scarce — photosynthesis slows, causing leaf pigment to fade, resulting in brown, brittle leaves that die and fall from the stems.

Photosynthesis is thwarted during drought or when a plant gets insufficient irrigation during summer's humid days. Prolonged wind will dry the soil around the plant's root. Without water or sunlight (i.e., photosynthesis), plants defoliate or totally die.

Besides glucose, other byproducts of photosynthesis are cellulose, a fibrous material that builds cell walls, and starch, which is stored food for when the plant needs nutrition. Once a plant strengthens into mature form, its energy turns to the reproductive structures — flower, then fruit — that contain seed for regeneration.

Underground root hairs gather minerals with the aid of moisture. As roots grow, they absorb more water and can feed larger quantities of plant parts — stems, leaves, buds, shoots, and flowers. Water movement through a plant not only nourishes structures but keeps them upright. Notice that when a plant lacks water, its stems wilt. A plant needs irrigation because it transpires water/oxygen through microscopic pores called stomas in its leaves. The process is similar to when humans perspire.

Soil amendments are important for the root zone since that's where plant roots gather moisture. Humus makes dirt malleable by drawing fine soil particles together into larger structures, creating small openings and improving the flow of oxygen and water. Waterlogged soil leads to poor drainage and depleted oxygen. If a root hair cannot absorb oxygen, it rots and dies. During the growing season (spring and summer), a plant needs more water but during dormancy, the growth cycle slows radically and water needs decrease. However, if snow and rainfall are meager in winter, your plants, especially ones planted in late fall, need regular watering for their newly developing roots. If they are irrigated properly through winter and early spring, the plant will be strengthened to withstand the humidity of summer.

Low-Maintenance Gardens

First of all, "low-maintenance" doesn't mean "no maintenance."

Low-maintenance gardening (LMG) complements today's fast-paced lifestyle. Most homeowners cherish their gardens but have neither the time to plant nor particular interest in learning about the landscape.

LMG does mean less work. The converse is high-maintenance gardening — perennials, herbs, bulbs, ponds, trees, shrubs, annuals, and ornamental grasses. LMG focuses on minimal weeding, watering, and leaf removal. By definition, LMG excludes certain interesting plant varieties and cultivars. Instead, what *is* planted is the native plant with a slow growth rate that doesn't need pruning, is drought-tolerant, has minimal water needs, doesn't lose its leaves, and is hard to kill.

LMG is the smarter approach in some ways, since the plants are winter-hardy and are largely resistant to plant and airborne pests and diseases, drought, humidity, and bacterial fungus. In an LMG, tender or fragile plants — *Gardenia*, *Rhododendron*, *Daphne odora* (**winter daphne**), *Pieris japonica* (**Japanese pieris**), *Kalmia latifolia* (**mountain laurel**), and *Cornus alba* (**tatarian dogwood**) — wouldn't be included. They aren't winter hardy or drought tolerant die, which necessitates replacement and time.

Besides the weather, LMG plants withstand neglect and dog incursions. A plant with a "You just can't kill it" reputation is an ideal LMG specimen. *Ligustrum* (**privet**), *Juniperis* (**juniper**), *Ilex* (**holly**), *Berberis* (**barberry**), *Liriope* (**lilyturf**), *Pachysandra terminalis* (**Japanese pachysandra**), *Euonymus, Buxus* (**boxwood**), *Yucca* (**Adam's needle**), and *Taxus* (**yew**) are such plants. They may not be ornamental but

they're resilient. LMG plants are evergreen and not characterized by interesting leaf color (maroon, lime, bronze, purple), flower, variegation, fruit, or branch exfoliation.

Minerals

Plants don't use all soil nutrients. Three vital nutrients for plant growth naturally deficient in the ground are phosphorous (P), potassium (K) and nitrogen (N). That's why garden centers commonly sell mixtures of these nutrients. On the bag, notice the "N-P-K" ratio, detailing percentages of each nutrient. In addition, sulfur (S), calcium (Ca) and magnesium (Mg) are needed for plant growth. These six are referred to as *macronutrients*.

Micronutrients, used in minute amounts, are iron (Fe), boron (B), manganese (Mn), copper (Cu), zinc (Zn), molybdenum (Mo), and chlorine (Cl).

Fertilizers are either organic or inorganic (chemical). Organic fertilizer is derived from living organisms and includes manure, fishmeal, cottonseed meal, bone meal, and sewage. Chemical fertilizers include ammonium nitrate, super phosphate, and muriate of potash, according to D.R. Bienz's *The Why and How of Home Horticulture.*

Now back to N-P-K. Percentages are important, since each nutrient has a horticultural function. **Nitrogen** is responsible for chlorophyll production vital in photosynthesis, and is essential for production of shoots, buds, and leaves. Although the atmosphere is made up of 78% nitrogen, plants do not snatch it from mid-air. They must absorb it through their roots. N-P-K is deficient in the soil since it is depleted by plant roots for use in development of a plant's structure. Nitrogen deficiency manifests in yellow leaves or limp foliage. Excess nitrogen will result in lush foliage but decreased flowering.

Phosphorus governs root development. It is released in the soil through decomposing organic matter. Phosphorus deficiency

manifests in dull green leaves or purplish stems. A plant with paltry blooming but lush foliage indicates phosphorus deficiency.

Potassium, or potash, figures in a plant's general health. It is integral to chlorophyll formation and disease resistance. Potassium deficiency is hard to detect. Your plants may be suffering from it if they have undeveloped fruit or frail-looking flowers.

Organic matter in the soil is advantageous because it holds more ions, the "vehicle" by which plant roots absorb minerals from soil particles. This area is referred to as the "plow area" and is seven inches deep. I've never farmed, but this tells me a farmer's plow blades till the soil no deeper than seven inches.

Soil texture is defined as the relative amount of sand, silt, clay, and organic matter in soil. This affects how well nutrients and water are retained. Clay soils retain nutrients and water better than sandy soils. As water drains from sandy soils, it carries nutrients (a process called leaching) away from plant roots. The "perfect soil" would have balanced quantities of sand, silt, clay, and organic matter.

Soilminerals.com informs us flavor and nutrition from fruit, grains and vegetables is directly proportionate to naturally occurring soil minerals, not by adding organic matter. The site says "no amount of organic matter" will make up for that. So much for "organic gardening," a phrase touted by today's nouveau grocers.

Mulching

Organic mulch is composed of tree by-products. It's either shredded bark or chipped. Lay the mulch laterally, Piling it like pancakes harbors rodents and encourages fungi growth. I have found snakes nesting or resting underneath mulch that was "stacked." Once, I moved the mulch aside to find a mother snake guarding her nest with three babies. Why there? Because she found shelter in a cool place that allowed air passage as well as an opening for her to enter and exit the nest. Interestingly, she had crawled up from a nearby wooded area.

Did you know …?

There are many benefits to mulching the landscape:

- The appearance is textured and fresh.
- It curbs erosion and soil from splashing the house or hardscape surface.
- It keeps plant roots cool in summer and warm in winter.
- It warms the soil for earthworm penetration.
- Organic mulch breaks down and feeds plants.
- It retains rainwater.
- It retards weed growth.
- It prevents water evaporation from the soil.
- It hides any landscape fabric laid over soil to prevent weed growth.
- It prevents sunlight from hitting bare soil and drying
- It retards wind's effect of drying out the soil and underlying root zone.
- It smells fresh.
- It absorbs a dog's urine and keeps it away from the plant's root zone.

That proves stacked mulch is a better nesting site or hiding area for reptiles and rodents than the leaves of the forest floor.

When spreading mulch, keep it away from the trunk of the specimen. Otherwise, you will wind up with root rot and shallow roots. Root rot invites insects and breeds fungus that eats away at plant tissue. A wound in bark tissue will invite infection, much like a cut on human skin.

On the edge of your garden bed, cut a trench so the mulch rests below instead of at grass level. Mulch spilling out onto the lawn is unattractive, but a delineation of differing heights between lawn and mulch is eye-catching.

What about free mulch? Remember: You get what you pay for. There is no guarantee when it's free. You never know what's inside the pile. Moreover, every male dog — including my beagle, JoJo — will lift his leg and christen it. Commercially packaged mulch brings no unwelcome surprises or foreign objects and there is no chance of chemical leaching.

Native Plants

You may have found a flower or plant you love. But before you think about planting it, find out its geographic origin and read about its native habitat and climate. The plant may perform in your area during the growing season but you need to verify it will survive a winter. The *Mandevilla splendans* (**mandevilla**), for example, is an annual flowering vine here but in its native Brazil, lives all year.

Say you'd like a *Betula* (**birch**) tree in your landscape. If it's *Betula nigra* "Heritage" (**river birch**), you're in luck. But if your preference is the white or silver birch, it will struggle to survive the intense humidity of the D.C. area. Even if it does, it won't look healthy since it needs the cooler summers, such as in New England.

Did you know …?

The U.S. Department of Agriculture designates 11 Plant Hardiness Zones (PHZ) in the mainland United States, Alaska and Hawaii based on temperature. Zones range from 1-11 with 1 being the coldest and 12 the warmest. In Washington, D.C., we are in Zone 6b-7. Northern Alaska — Zone 1 is the coldest, while the Florida Keys, the southern tip of California, and the Hawaiian Islands (southern Kauai, Oahu, Maui and the outer perimeter of Hawaii) are in Zone 11, the warmest. Every plant has a natural PHZ designation so a buyer can determine if a plant will tolerate the temperature extremes of a given geographic area.

While vacationing in Camden, Maine, in 1998, I found a country arboretum filled with birches. In Virginia, it's hard to find a healthy birch tree unless it's the *Betula nigra* "Heritage (**birch**)**.** But on a drive through the hills of Mount Airy, Maryland, I noticed many, since

that area was 20 miles from the Pennsylvania state line. If you're shopping for a Christmas tree at your local nursery and decide on an *Abies* (**fir**), ask the clerk where the tree came from. Most likely, it was trucked in from the Smoky Mountain climate of eastern Tennessee or western North Carolina. They certainly weren't grown in the Washington, D.C. area. Fir trees also are grown in the Pacific northwest but it's more economically feasible to order them from our "neighboring" states.

In our areas, these specimens perform well 12 months a year:

- For small trees, please see my chapter on *Trees*, where I list my favorites. If you have a small patio or courtyard or if you want a modest tree, be sure to read the label. Look for its "mature size" in height and spread (width). Some flower, some don't. Some bear fruit. Some are airy (with openings between their branches) and others are tight (dense foliage). Some have sturdy branches while others have softer limbs that sway in the wind. Most flowering trees will lose their leaves, leaving you with a wooden skeleton in winter. Consider the *Betula nigra* "Heritage" (**river birch**), *Lagerstroemia indica* or *faureii* (**crape myrtle**), *Ulmus parviflora* (**Chinese elm**), *Platanus occidentalis* (**sycamore**), or the *Pinus bungeana* (**lacebark pine**) if you want exfoliating, spotted, or patterned bark. The beauty of evergreens is foliage 12 months a year, despite no flower or fruit.
- For shrubs, I start with *Nandina domestica* (**heavenly bamboo**) but not the Orient type with thick canes). It has flower blooms in spring and fall and beautiful hanging panicles of fire-engine-red fruit as it matures. The *Camellia japonica* (**Japanese camellia**) has dark green, glossy leaves with vibrant pink, red, and white flowers that open from November to March, depending on the cultivar. *Juniperis communis* (**common juniper**) loves the sun and tolerates humidity and drought. It has bluish-green evergreen

foliage with a feathery texture. There are many types of juniper. This kind grows in a vase-shaped habit. **Azaleas** come in many cultivars and provide beautiful color in April. Hybrid azaleas flower in late fall/early winter as well. Ornamental grasses, especially the *Miscanthus sinensis* genus, offers many cultivars from which to choose: thick blades, needle-thin blades, variegated foliage, spotted foliage — all of which grow in a vase shape with curves at the tips. Grasses need sun and have to be cut back to the ground in late winter or early spring. They go dormant in winter, becoming brittle, beige, curled-up palms. But during the growing season, the plant is a sound element, whistling when the wind blows through its blades. When the plant flowers, there will be either bronze or maroon feather tips atop long stems in the center of the plant.

Invasive or exotic plants are ones that were brought here from another country. Exotics are wild and eventually strangle native plants with twining vines or large-leafed branches, which block the sun and suck the water from their root zone. Exotics don't belong here and act as such. Too many invasive plants — **ivy**, for one — dominate an area, crowding native plants out of their natural habitat.

Patios

The first step is to visit a "finished product" in your neighborhood. If you approve, get the contractor's name. If you don't find a patio appealing, visit a stone yard to examine pavers, stone, and brick. Pick them up or touch them to get a feel for the product. If that isn't to your liking, hire me and I'll do the legwork.

Hardscapes can be installed with either mortar or stone dust. If you want accessories on the patio — table and chairs, grill, children's toys — and you want the surface to be perfectly flat, mortar is best.

I work only with stone dust foundations, which require less maintenance. My foundation is a 2-inch-thick base of stone dust, which is pulverized stone. Atop that, I place either flagstone or pavers. Flagstone should be at least 1½ inches thick. Two-inch-thick stone is better. With the weight of the stone and moisture, the stone dust sort of "hardens" in place acting like a dry cement or Play-Doh.

Flagstone styles vary. Choose one with a flat-bottomed surface, which will mitigate wobble. Flagstone comes in different colors (though typically charcoal), shapes, sizes and thicknesses. If you want an artistic look, choose irregularly shaped pieces. Remember, the underside will be smooth but the top will have relief (etching, layering). This helps with drainage, is more attractive, and feels better on the bare foot.

If you are a visually "linear" person, choose a geometric shape (square or rectangle). Once you're at the stone yard (Sisler in Falls Church is where I shop), it'll be easy to choose. A patio made up of smaller pieces makes the layout seem smaller and "chopped up." A larger-piece layout presents a broader look. Using two or three different sizes in the layout makes the appearance less monotonous.

With pavers, notice the mixed-color finish. One type, Victorien red and black (at Sisler), is a salmon-colored paver with blotches of charcoal. The blend is softer on the eye and less stark than a single color of salmon, gray, or even cream. The color blend has a more modern look and gives the patio "floor" movement with its color swirls.

Thickness is important. A piece of stone that is too thin (¼ inch) will move after placement, but a piece 2 inches thick and big enough (2 feet by 3 feet) will not. When you're walking on a patio, you don't want to feel stones shifting under your feet. Also, the thicker the stone, the less likely there will be cracking or splitting. Foot traffic and temperature extremes (110° heat index in August and 15 blustery degrees in January) can tax a stone's strength and will definitely wear on mortar applied between stone pieces.

Leaving gaps between stone pieces is vital, since every piece has size variation from ¼ to ½ inch. Gaps also provide "forgiveness" in the layout and a "trench" for planting of flowering ground covers *Galium odoratum* (**sweet woodruff**), *Alyssum* or even herbs *Thymus* (**thyme**), which when stepped on releases a fragrance from its oval leaves.

When the stone is being placed, use a level to ensure slope for drainage. The grade need not be extreme (1 to 2 inches over a "run" of 12 to 15 feet is sufficient for water runoff). Angle the grade down and away from the building to keep water from gathering near your house.

For a large patio (greater than 10 feet by 10 feet), concrete pavers are preferred over bricks. Pavers have an indented lip (¼ inch) around their top, rectangular edge. When pavers are butted up against one another, the indentations meet to form a "gutter" for drainage. It's also more decorative than the standard, flat-topped brick jammed up against one another. Look at a leaf that is serrated as opposed to smooth around its edge. The leaf edge with sinuses (indentations), teeth, or wavy margins is more visually interesting than the leaf of a *Magnolia grandiflora* (**southern magnolia**) that is straight along the edge.

Concrete patios can be attractive but there is something "industrial" about their look that is a turn-off. Mortar chipping can be repaired, but a dye needs to be added to the mortar mix to ensure a consistent color in the "veins" of your patio. If a dye is not used, it'll be obvious where the repair was made because those "lines" will be stark white.

Then there is the artistic patio, which can resemble an English or cottage garden. We laid one of these for a customer, Cori, who wanted to plant a flowering ground cover between the stone pieces. We placed large, irregular-shaped stones over 2 to 3 inches of stone dust in her patio.

Besides the above plant recommendations, give these fibrous-rooted plants a try between stone pieces in your patio: *Soleirolia* (**moss**), *Phlox, Ageratum* (**floss flower**), and *Pachysandra terminalis* (**Japanese pachysandra**). Yes, they will root in stone dust! Just use your fingers — their root fibers are the thickness of a needle. Eventually, the gaps will fill with foliage and flowers — some scented — which soften the harsdcape by creating a pattern and texture. Tiny plants "cut up" the patio into puzzle pieces, which move the eye around the patio.

For cleaning, any type of patio can be pressure-washed. Doing so without existing mortar is somewhat messier when new and may require a modest reapplication of stone dust (softly swept into the veins with a broom). Letting the patio "age" gives your patio a lived-in ("cottage" or "natural") look as opposed to a stark-gray surface that readily reflects the sun's glare. If you plant between stone pieces, live with a little soiling of the stone's edges. With maturation, the foliage will keep any soil in the spaces between the stones.

Perennials

Loosely, *perennial* refers to something that occurs yearly. True, but in more defined terms, it refers to a plant that lives from two to five years, bears flower and fruit, and is dormant in fall and winter. This term is given to herbaceous garden plants that bear no woody parts.

Perennials are diverse in habit, ranging from white-spotted ground creepers like *Lamium orvala* (**deadnettle**) to upright specimens such as *Delphinium*. They can be variegated *Hosta* (**plantation lily**), trifoliate at the stem tips *Astilbe* (**false goat's beard**), or have a bulging, ovate leaf such as *Sedum* (**stonecrop**).

To maximize the beauty of a perennial, it's wise to choose one with a lengthy flowering period. Otherwise, you'll wait all year for a very short bloom time. A perennial in dormancy is brittle, wheat-colored foliage that wilts or sits crumpled for six months. A perennial purist has a garden full of varieties to ensure "constant" blooming. So the key is to plant perennials with staggered bloom times

Spring

Among spring perennials, let's start with *Anemone* (**snowdrop**). This white solitary flower with yellow stamens nods on a 1-inch-long stem in April-May. *Aquilegia canadensis* (**columbine**) appears in violet, orange, blue, yellow, and color combinations on a long stem during the same time. From a distance the flower looks like a grasshopper clutching the end of a stem.

Digitalis purpurea (**foxglove**) is a May-bloomer in pink, purple, and white with colored spots in its throat that serve as nectar guides for pollinators such as bumble bees, swallowtails, butterflies, moths, and hummingbirds. Foxglove grows to 4-6 feet tall and has basal foliage. *Hellebores* (**Lenten rose**) has a pinkish-white rosette flower in March-April that hangs like a bell low on the plant, inside its basal

foliage. The plant loves shade and can be seen growing on any forest floor under dense tree canopy.

Heuchera sanguinea (**coral bells**) has a tiny pink flower growing on a long, thin stem. Its basal foliage is scalloped, textured, and offers a maroon-olive, glossy leaf. The coral bell-bonus: The flower blooms from April to October. *Mertensia virginica* (**Virginia bluebells**) buds in pink and opens in a small, blue trumpet on long stems in April.

Summer

In the summer, look for these: *Chasmanthium latifolium* (**northern sea oats**). The tiny, wicker-like ovals hang on the stems like fish dangling on a line from May to December. The grass plant is dense with wide, basal foliage that grows 6 inches long. *Chelone lyonii* (**turtlehead**) flowers in purple and pink in a pair of curved lips that resemble a turtle's back. Elliptical foliage grows all along the plant. The flower resembles that of *Antirrhinum* (**snapdragon**).

Coreopsis verticillata (**thread leaf coreopsis**) shows in yellow and mustard in summer. The foliage is needle-thin and grows in sprays that surround the flower, which is a composite, starburst bloom. *Echinacea purpurea* (**purple coneflower**) has a daisy-like pink flower in July and August. In the center of the bloom is a dark brown, tightly packed seed head that goldfinches love. The basal foliage is puckered, crinkly and up to 10 inches long.

Lobelia cardinalis (**cardinal flower**) shows a five-lobed, two-lipped, red bloom in July–August. Tubular in form, it attracts hummingbirds. The lance-like foliage is reddish-purple and toothed on the edges. *Platycodon grandiflorus* (**balloon flower**) is a shallow, blue, bell-shaped star that opens in July. The bluish-green ovate foliage is toothed on the edges and whorled at the tips.

Planting

How

The photosynthetic process involves a plant absorbing minerals and oxygen from the ground through water. Thus, a plant's roots must penetrate the soil. Roots need to take in groundwater, which is transported up into a plant's cellular structures (stems, shoots, flower buds, and leaves). If a root ball is planted too deep, the root zone becomes weighed down and tightly packed, preventing moisture from reaching root fibers and keeps the roots from growing out and meandering through soil particles.

Before setting the root ball into the hole, remove any covering (metal cage, rope or burlap). All this does is rob the ball of moisture and pinch extending roots. If a root ball is 12 inches deep, its top two inches should be situated above the soil line. But if the plant is going into "poor soil," meaning it's clay-like and rocky, you may situate the top third of the root ball above the soil line and use extra backfill around the site after the ball has been planted. Better yet, plant the shrub in another location. After the root ball is in the hole, spread backfill (dirt from the hole) over the new planting area. When mulching, don't push it up against the trunk since this will cause root rot as well as encourage ground surface roots.

Roots grow laterally. Next time you walk through the woods, look for a fallen tree and you'll notice its root structure is basically horizontal. Most root balls have "flying saucer" shapes, not tap-rooted (downward) root growth patterns. That's why you dig the hole wider than deeper. You want the "lateral" soil in the root zone to be soft, which it will be with backfill. Drop a root ball into a tight hole and the roots will struggle to permeate the soil and absorb moisture/minerals.

When planting, I use soil conditioner, which feels like peat moss and looks like loam. Topsoil is another alternative. Basically humus is

ideal for root growth. But never overload a hole with fertilizer or soil additives, as they will burn fibrous roots. Also, be gentle with the root ball if it begins to crumble. I was careless once with the soft root ball of an *Amelanchier laevis* (**Allegheny serviceberry**) tree. When I set the root ball into the hole, the roots became exposed when the soil broke away. The root ball was the tree's life-support. From the start, the tree struggled and it ultimately failed. When its nutrient system detached, the roots were helpless.

Before putting the ball into the hole, poke some holes around the circumference of the ball with the end of a spade fork or edge of a trowel. This gives the roots openings from which to grow and allows air and water to reach inside the tight ball. Earthworms — natural soil tillers — also will be able to move more freely through openings. Aerating the root ball also enhances drainage.

Perhaps a quarter of the time I plant, I "fork off" the bottom 2 inches of the ball if it is hard. Why? Think how hard roots have to work to grow through compacted soil. After removing this "hard disk," fibrous roots hang free and then, will readily grow into the surrounding root zone.

Give the planting area water but don't fill the hole with water. If it's July, water more. If it's November, water less. With no humidity from November through March, less photosynthesis taking place and reduced moisture loss from the soil, a plant's water needs decrease. In addition, plant leaves won't transpire at a high rate when temperatures are low and humidity modest. Giving the new plant excess water could drown young, fragile roots.

When

March/April or October/November are ideal times to plant in the Washington area. Humidity is low, so evaporation from the soil and leaves is minimal. With sufficient moisture in the soil, roots readily will extract minerals and nutrients from the ground.

Can you plant in August when the heat index is 110? Sure — but watering is critical. A soaking here and there won't do. You have to regularly water new plantings or they will die. Miss a watering with a *Hydrangea, Buddleia* (**butterfly bush**) or *Cornus alba* (**Tatarian or redtwig dogwood**) or annual plants and immediately, they will wilt. Miss two waterings and they're goners. An overhead sprinkler soaks the foliage, not the roots. It's a waste of time and money. Water where it matters — in the root zone underneath a plant's drip line (that is, from the outermost branch tips in toward the main stem/trunk).

Did you know …?

You could give your Christmas tree new life. A tree with the root ball intact may survive if you've already dug the hole and saved the backfill. Digging a hole in late December or early January may be difficult if the ground is frozen. Sink the root ball into the hole (with a third of the ball above the soil line). Make sure you fork the ball for aeration. Liberally fill the sides of the hole with backfill. Push it up over the soil ball and pat it down. Then spread mulch thickly (remember, it's winter) over the root zone. Water the planting once a week for the next month if it doesn't rain or snow. You may want to stake the tree, since it is top-heavy, has an un-established root system and will be susceptible to wintry winds. Another alternative is to keep it in the garage or basement with the ball in a container. Remember to water. Then, in mid-March, plant it.

In Obstructed Soil

Planting is compromised where there are large, exposed tree roots. Still, smaller plants will root in tight spaces and compete with an established tree's roots for necessary water.

When a planting area is suffocated by the long, twisting arms of a maple tree, forget the shovel and use a trowel to dig. You can also

bunch two or three ground covers together and stick them in one hole. Use backfill, topsoil, or soil conditioner to fill the holes. Be patient, since digging among tree roots will be tedious. Or call me.

Here are ground covers with fibrous roots to try: *Ajuga* (**bugleweed**), *Vinca minor* (**periwinkle**), *Pachysandra terminalis* (**Japanese pachysandra**), *Asarum* (**wild ginger**), *Helleborus orientalis* (**Lenten rose**), *Liriope* (**lilyturf**), *Sarcococca hookeriana var. humilis* (**dwarf sweet box**), and *Ophiopogon* (**mondo grass**). My favorite is *Pachysandra*. It is vertical and flowers in spring. You can purchase the plant with a green or variegated leaf. The leaf is lime-green with a scalloped edge that grows in radiated pattern off the top stem. It requires a planting hole only the size of your thumb.

Depending upon the size of the tree roots, you can dig small holes to accommodate *Liriope*. There's a *Quercus* (**oak**) tree in Fairlington on a hill on South Utah Street, across from the Community Center soccer field. Look at it from the road and you'll notice a pattern of *Liriope* planted directly underneath its canopy. The ground area is filled with plants, which remedied an eroded area. Dominant roots may steal water from the new plants but the overhead canopy prevents the soil from rapidly losing moisture in the heat.

Pollution-Tolerant Plants

Sure, some of my plantings have died, but none that I can remember directly from pollutants. With traffic comes exhaust fumes. And since there are so many vehicles driving day and night, plants possibly have built a tolerance to the fumes. However, if your garden lies near a driveway or a busy street, you might want to ensure that the plants going in your landscape can tolerate these toxins.

Here are some "tough" plants when it comes to resisting pollution.

Ligustrum (**privet**): No wonder! It's so homely, nothing could worsen its appearance. I'm always harsh on this plant, which has done nothing to me. However, this tough evergreen produce a fragrant flower in May and clusters of blue-black drupes (fruit) in late fall that persist into winter. If you want to mask a concrete staircase or power boxes, privet is suitable. It will survive drought as well as the cooking sun in Northern Virginia.

Berberis (**barberry**): Like privet, it has a tough-looking appearance and thorns that will sting when they break off into your skin. But its small, maroon, oval leaves illuminate when the sun shines through its dense habit. Make sure you purchase an evergreen cultivar that will filter pollutants.

Cotoneaster apiculatus (**cranberry cotoneaster**): Frequently seen near sidewalks and streets, this bushy, low-growing evergreen has soft, arching branches filled with tiny white flowers in May. In autumn, red fruit dots the foliage. Cotoneaster grows only 2 feet tall with a somewhat wider spread, depending on the cultivar. It likes heat and looks pretty lining a sidewalk.

Forsythia x intermedia (**border forsythia**): This sun-lover will provide height with its stretching branches. One of the first-flowering shrubs in early spring, forsythia barely nudges out *Chaenomeles speciosa* (**flowering quince**) but trails *Mahonia bealei* (**leatherleaf mahonia**), *Jasminum nudiflorum* (**winter jasmine**), *Camellia japonica* (**camellia**) **and** *Chimonanthus praecox* (**fragrant wintersweet**) as the season's first bloom. Forsythia's flowers are a brilliant yellow and are eye-catching after a colorless winter.

Ceratostigma plumbaginoides (**plumbago**): This spreading, deciduous ground cover likes sun and offers pale to royal blue flowers in reddish-purple tubes in late summer. The purplish-edged leaves become reddish-bronze in autumn.

Ilex cornuta "Burfordii" (**Chinese holly**): A dense, globose-shaped evergreen with long-lasting red berries showing on its extremely spiny foliage throughout winter. Its fruit is parthenocarpic (self-pollinating, thus needs no mate).

Ilex aquifolium (**English holly**): This oblong, lustrous, evergreen shrub has long, narrow leaves with spiny points toward the outer edge. Red, orange, and sometimes yellow berries fill the shrub after May flowering. The female plant needs a male plant nearby for ovary pollination/fruiting.

Aucuba japonica (**Japanese aucuba**): If your "pollution zone" sits in the shade, plant this shrub. *Aucuba* is an evergreen with green or variegated foliage. The female plant (which needs a male nearby for pollination/fruiting) has red, jelly bean-sized drupes that form just inside the foliage in October and last until spring. *Aucuba* is big, growing 6-8 feet tall with an equal spread. Variegation comes in cream or yellow and is either swirling or speckled. Its leaf is elliptic-lanceolate, scalloped on the edge and grows up to 8 inches long.

Ponds

Site Preparation

There are two basic ways to create a water element: 1) Dig the hole size you wish and line it with rubber, or 2) buy a fiberglass "tub" and dig the hole to fit its underbelly.

For the first option, dig a hole to your desired size. Buy chemical-free sheet rubber (minimum 1/8 inch thick) and lay it in the hole and up over the edges at ground level. It may be wise to avoid rubber liners coated with an algae inhibitor, since this could affect the "natural" balance of the pond's animal and plant life. However wide the sheet is, overlap the edges so the entire hole is covered and no soil is visible. Keep the liner from sliding back into the hole by placing pavers or flagstone on its edges around the lip of the hole.

For the second option, purchase the tub and dig the hole. After some excavating, the tub will settle into place and become level. Use backfill and sand underneath the base of the tub so it is snug and doesn't wobble. Remember, if the tub isn't level, the water line won't be, either.

Give the pond a natural look by lining its edge with plants. Vary the plantings so the perimeter looks natural. Leafy, pendulous foliage looks best near the water's edge. The pond area needs six hours of sun a day for vigorous plant growth. **Iris**, *Astilbe, Hosta* (**plantation lily**), *Liriope* (**lilyturf**), *Tradescantia* (**spiderwort**), and *Hemerocallis* (**day lily**) are good options for the soil at the pond's fringe. A favorite of mine is *Tradescantia fluminensis* (**wandering Jew**) that is purplish on the underside of the foliage blades

Accessories

An electric, submergible *pump* is necessary to create water movement. This deters mosquitoes from breeding in summer and

offers a sound element with rippling or bubbling water. It's best to have an exterior switch installed at your house for the 110-volt, 20-amp pump circuit. To create a waterfall, run a dark-colored hose from the pump up under an elevated bed of rocks to its spillway position.

A *heating element* may be necessary in winter if your pond water lacks necessary depth. A "biological filter" is necessary to allow ammonia from fish feces to escape the pond water. If this gas is trapped in the pond, it becomes toxic to fish. As long as the pond is at least 3 feet deep (or below the freezing line), fish will be able to swim at the base of the pond 12 months a year. If you still are concerned about the water freezing in winter, install a heating element that will ensure a "hollow cylinder" of unfrozen water from the surface to the bottom of the pond.

Spitters are decorative but can drain a pond. A frog, fish, or boy holding a turned over jug are commonly used. However, if the water "spit" back into the pond is deflected by plant foliage and falls outside the pond, it eventually will drain the pond. Recirculated water needs complete re-entry to maintain a consistent water level. If that level drops and exposes the rubber liner on the sides, the sun's ultraviolet rays could burn the rubber.

Nylon netting on the water's surface will deter herons and hawks from swooping into the pond for a fish. It also deters opossum, raccoon and other rodents from reaching their claws or snouts down into the water. In the meantime, netting keeps leaves from crumpling and decomposing into the pond water. Situating a round, reflective ball (like a giant Christmas ball ornament) at the pond's edge also is known to frighten large birds from perching and "fishing" in your pond.

The water pump will need maintenance. Any kind of brush is good for cleaning the algae and foliage from openings in the hard plastic housing. Pump filters can be cleaned or replaced as necessary. When the pump is pulled from the water for cleaning, be sure to drain the water out of the component for a thorough cleaning.

Plants

*Nymphae*a (**water lily**) and *Nelumbo lutea* (**American lotus**) are two popular bog plants that will survive in water. They can be submerged in dirt-filled pots and placed either on the pond bottom or shelf, if the tub has one. *Nymphaea's* flat pads are surface decoration as well as welcome mats for a frog, turtle, or salamander. You have 50 species of water lily sunburst colors from which to choose.

Over the dirt, sprinkle pea gravel to weigh the pot down and keep dirt from swirling into the water. The foliage provides cover and food for fish and gives the pond a natural look. But keep in mind that algae will form on the pond surface during photosynthesis.

Peter McHoy suggests these two oxygenating plants for ponds in his useful book, *Practical Small Gardens*:

Elodea canadensis (**Canadian pondweed**) is an oxygenator for fish. It has branching stems and translucent leaves. The greenish, purple-tinged flower floats on the water surface. It provides a safety "cover" for fish and helps maintain a nutrient balance in the water pH. This plant needs full sun.

Myriophyllum (**milfoil**) has feathery green foliage resembling *Foeniculum* (**fennel**) and protects the fish from predators. The plant needs full sun and fish may nibble on its new growth.

Algae can be controlled by chlorine, as long as you have no fish or plant life. If there are fish and plants in your pond, use an ultraviolet clarifier to keep algae growth in check. The deeper the pond, the better chance plants and fish will survive against the oxygen-depleting algae. Winter is a good time to thin out oxygenating plants in the water. You also can remove plants to thin or divide root systems.

Other floating plants for the water are *Eichhornia crassipes* (**water hyacinth**) and *Hydocleys nymphoides* (**water poppy**). Plants always should be placed in containers so their invasiveness is kept in check.

Fish

Wait 48 hours before adding your swimmers so existing chlorine from spigot water evaporates. The combination of fish and plants creates an ecological balance in your pond, which takes eight weeks to achieve. In addition to a filtering system, fish and aquatic plants help to counteract algae but cannot totally eliminate the natural grower.

Goldfish survive winters by "hibernating" at the pond bottom. Shubunkin, calicoes, orandas, and fantails are types of goldfish. **Japanese koi** grow 2-3 feet long, so they'll need space. If crowded, they will deplete the plant foliage from your containers.

When you add fish to your pond, they'll need to acclimate to the water temperature. Float the new fish in their plastic bags on the pond surface for 20 minutes, just as you would with an (inside) aquarium. During this "holding" period, place newspaper over the plastic bags to block the sun's rays on the fish. To maintain a healthy ecological balance in your pond, remember this equation: stock 1 to 2 (linear) inches of fish for every 4 gallons of water in your pond. For large fish, stock at a rate of ½ inch per 4 gallons of water.

In spring, summer and fall, it's not necessary to feed the fish if you have sufficient plant life in the water. If you do feed them, minimize the amount of food to avoid algae production and water clouding. While feasting on plant foliage, fish also will feed on mosquito larvae, keeping that population in check. In winter, a fish's metabolism slows, so its need for food decreases. But if winter temperatures are mild (upper 40s), their metabolism spikes and they'll need additional food.

Reference your geographic location to ascertain "frost line" depth. In Washington, having a pond at least 3 feet deep allows the water to remain liquid in winter.

Winterizing the Pond

Disconnect the pump, clean it, and remove it from the pond after the first frost. When plant foliage goes dormant and turns brown, cut

it back by two-thirds, just as you would an in-ground perennial. This looks neater, keeps the pond clean, and eliminates a breeding ground for pests.

Again, rely on a "biological filter" system to allow toxic gases to escape. In winter, never break the ice as shock wavers can harm fish. Don't drastically increase the temperature of the water as this also could shock the fish. A tarp could be spread over the pond (6 inches above the water surface) to protect it from ice, snow, wind, and dense cold air. Sunlight also will be kept out but plants will be dormant so photosynthesis is almost moot.

Cleaning

If a full-scale scrub of the pond liner is in order, move the fish to a tub of water that is the same temperature as the pond water. Provide aeration (by pump) if the fish will be out of the pond for 3 or 4 hours.

Did you know …?

There is something called "beneficial algae" that grow on the sides of the pond liner. It's best to not scrub this away. Beneficial algae control pest larvae and other harmful plant and animal bacteria naturally forming in sunlight.

Use a soft-bristle brush to avoid scratching the rubber liner. Don't use detergents, because they contain chemicals. When the pond is refilled with water, remember that it contains chlorine that must be filtered with chemicals before it is safe for the fish to return. Put the fish back in the pond when the water temperature equals that of their temporary container of water.

Pruning

Every tree and shrub has an optimal time for pruning. The reference guide I use was supplied by the Virginia Cooperative Extension Office. To reach the center nearest you in Arlington, call 703.228.6400. In Alexandria, call 703.519.3325. You may visit any center to have your garden soil tested to determine its pH.

Optimal Pruning Times

Deciduous Trees	
Birch	November-January
Flowering cherry	June-July
Crabapple	May-July
Dogwood	June-July
Magnolia	May-July
Maple	May-July and November-December
Oak	November-December
Redbud	May-July

Shrubs	
Arborvitae	January-March, June-July and November-December
Azalea	May-July
Boxwood	January-July and November-December
Butterfly bush	February
Camellia	April-June
Crape myrtle	January-March
Forsythia	April-July
Holly (evergreen)	June-July
Juniper	November-March
Lilac	June-July
Nandina	January-March
Photinia	November-February and May-July
Pyracantha	June-July
Rose	February-March and July-August
Viburnum (deciduous)	May-July
Yew	Any time, except August-October

You may prune any specimen any time if there is a dead branch, crossing branch where bark is being rubbed away, or obstructed branches that impede a walkway or stretch out at eye level. Also, if there are branches clustered on the inside of a tree, carefully clean them out to allow sunlight inside the specimen. For instance, if two inside branches are copying each other's route, cut one of them off at the main leader. When you do prune, leave a ½-inch stump, so as not to cut into the "collar" or cambial layer (cells between the wood and bark) of the trunk.

If you're cutting off a heavy limb, use this three-cut process: 1) Cut underneath the limb, 4 inches out from the trunk. 2) Cut above the limb, 4 inches out from the trunk. 3) Cut from the top of the limb, 2 inches out from the trunk, all the way through to the bottom of the limb. (If, during your second cut, the weight of the limb causes it to drop and break at the cutting point, it will tear at the underside cut and not all the way to the trunk, where the force could leave a sheathing wound.)

About all my pruning is done by hand. As I work, I step back and look at the pruned shrub from different positions. If I've pruned smartly, I won't notice where I've cut.

Rashes from Plants

Since my office happens to be outside, I need to be wary of any specimen that causes a rash. Anything living in the landscape can be an irritant, so I am careful when handling a leaf, fruit, or stem.

Besides the common *Toxicodendron radicans* (**poison ivy**), *Toxicodendron toxicarium* (**poison oak**) and Toxicodendron vernix (**poison sumac**), only one plant has bothered me in the years I have landscaped.

That nemesis is *Houttuynia cordata* "Chameleon," a rhizome-spreading perennial noted for its variegated foliage and red stems. It is an invasive ground cover in more ways than one. When I am around this plant, a substance builds in my throat making me cough. But that's just me. Others on our crew remain unfazed by *Houttuynia*.

Poison ivy most commonly grows as a vine that wraps around trees or just pokes its stems above the *Hedera* (**ivy**) in the woods. Each "leaf" has three leaflets, the largest being in the center. Its leaves turn red in fall.

Did you know …?

An oil, urushiol, in the sap of poison ivy, poison oak, and poison sumac, causes the allergic reaction, dermatitis. Contact with as little as one-billionth of a gram of the sap causes itching. Also, 85% of humans get a rash after the second contact with a "poisonous" plant, according to the Physicians Desk Reference (*www.PDRhealth.com*). *Urushiol* comes from the Japanese word *urushi*, which means lacquer, produced in East Asia from the sap of Kiurushi trees.

—SOURCE: Wikipedia

Like poison ivy, poison oak climbs around the trunks of *Quercus* (**oak**) and *Platanus* (**sycamore**) trees. Poison oak either has three or five leaflets which appear as miniature oak leaves or lanceolate leaves with an acuminate terminal.

Poison sumac grows as a woody shrub or small tree and prefers damp conditions. Its pinnately compound leaf is trifoliate. Individual leaves are obovate, flecked with red, and have acuminate terminals. Its leaf veins are red and its fruit is a small white or gray berry.

Roses

The most beautiful flower in the garden is the **rose**, in my opinion.

Did you know …?

There are eight different types of *Rosa* bloom: flat, cupped, rounded, high-centered, urn, rosette, quartered rosette, and pompon. Flowers either are single (8 petals), semi-double (8-20 petals), double (20 or more petals), or fully double (30 or more petals).

— *SOURCE: The A-Z Encyclopedia of Garden Plants*

Whether the bloom is fully open or funneled and young, it is gorgeous. There are 15 sub-groups under the "Old-Fashioned" heading and another nine under the "Modern" heading. As for cultivars, there are thousands.

Roses are remontant, meaning they bloom more than once during the growing season. That is usually in late spring/early summer and fall. The species is native to "the world," basically, with its roots in Europe, Asia, North Africa, and North America.

The A-Z Encyclopedia of Garden Plants devotes 25 pages to the rose, more than any other specimen among the 15,000 plant specimens described in this anthology. The flowers are red, pink, white, yellow, orange, violet, blush, and mustard, as well as beautiful pastel combinations.

When I was a boy, my Aunt Gladys had a red "rambler" in her sunny, upstate New York back yard. It had arching branches that reached over a macadam path to the front sidewalk. Her great nephew, Vincent, had a thriving rose garden in Virginia Beach. Before

he bought a country home, he rented a couple miles away and planted the entire front of "his" building with roses. His was the only building in the complex that was landscaped. What few shrubs existed were the standard, closely cropped evergreens.

Pruning roses takes some care. Radical cutting depends on which group of rose you have. (A chart on page 889 of *A-Z* provides the details.) However, you can safely remove dead, diseased branches and suckers at any time. Deadheading is advised unless you want hips (fruit) to appear. Generally, in fall, trim long branches back 1 foot so the shrub doesn't try to list in strong winds. Do *not* prune in wintry weather.

Roses are high-maintenance, which is why they are considered old-fashioned. Here's what they are susceptible to: aphids, leafhoppers, spider mites, scale, insects, caterpillars, sawfly larvae, cane borers, Japanese beetles, rose stem girdlers, thrips, rose chafers, rose midges, rose slugs, and leaf-cutting bees. Roses also can fall prey to powdery mildew, black spot, rust, dieback, canker, crown gall, viruses, and downy mildew.

My favorite? I have two: "Abraham Darby" and the "Alpine Sunset." The former is a bright orange. It is a fully double, fruit-scented, apricot-pink flower. The latter is a tea rose with a rounded, fully double, fragrant, light peach-yellow flower.

Sod

Sod is "instant" lawn.

Seeding a dirt area takes maintenance. All watering done in the area will splash, run off, or evaporate at a higher rate. Some type of cloth is needed over the area so seed will stay in place and not disappear to rain, wind, or hungry birds. In the meantime, a ground under repair — as one finds at the golf course — remains unattractive.

Sod is a valuable landscape element. If the lawn area is lush and green, shrub beds blanketed by fresh mulch are dynamic. But if there is an area where the grass grows in patches, it's time to dig up what grass is there, grade the area, and lay fresh sod. **Fescue** is the sod of choice for two reasons: it performs well in sun or shade, and it is resilient under foot and dog traffic.

It's important to level bumps and fill swales in the area to be sodded. Rake out rocks and debris so the surface is smooth. Now is the time to water. Here is where a sprinkler *can* be used. Water liberally until puddles appear.

Start to unroll the sod pieces (2 feet wide by 5 feet long) and then score the dirt side with a utility knife or poke small holes with a spade fork. This loosens the grass roots, just as scoring a root ball frees shrub roots. Now, soak the dirt side of the sod piece until it is muddy. Flip it over and lay it on an edge of the dirt area. Push the piece up against the edge of the sidewalk or shrub bed. If against the sidewalk, raise the sod level so a walker's step off the sidewalk doesn't "dip" radically. Stretch the sod piece so there are no wrinkles.

The next piece is laid either in a linear line or in the next row but with a staggered seam. So doing helps mesh pieces together and avoid

"rivers" (or lone mesh lines) through the landscape. When laying the pieces side-by-side, make sure there is no gap. There are different methods of "securing" the sod to the soil. I do not use a roller or tamper because watered sod is plenty heavy and with gravity, will remain in place.

Once you've laid a few pieces, stop to soak the "new" turf. Water until it splashes off the "grass." If sod is being installed between mid-May and mid-October, you can't water enough. Don't worry about the "mushiness" of your new lawn; the excess water will evaporate.

During this warmer period, the sod should be watered three times a day. If it is March-April or late October-November, reduce watering. Maintain that schedule for 10 days as new grass roots establish. Again, on days when it rains or cloud cover is thick, eliminate or reduce watering.

As for cutting the "new" lawn, wait. As with a new shrub, you don't want to cut or prune while a specimen is establishing its roots in the soil. Just let the sod grow a week or two before mowing. When you mow the first time, raise the blade so it doesn't thrash the "new" turf. You can walk on it right away. But don't stand in one place too long or your feet will sink and create a swale.

Sod itself is affordable. In the Washington area, nurseries import it from farms on Maryland's Eastern Shore. In times of drought, sod inventory is compromised. If it doesn't rain on sod farms, it can't be harvested. Reputable nurseries import sod daily. Don't purchase sod that has sat on the lot for 2 or 3 days. New, dry sod turns yellowish-brown and may die before it can be planted in a landscape.

Soil pH

Honestly, I've never tested soil at the extension service. Instead, I concentrate on each specific site of a new planting, adding amendments as necessary. I remove existing soil if it won't allow the new plant to establish roots.

Soil pH may be more of a concern for crop farmers, greenhouse growers or tree farmers. Even in those situations, it would seem the pH could vary from one acre to another. And if that number varied, how would a grower establish a uniform reading before planting a crop or plant genus? These what-ifs point to efficient soil preparation on a hole-by-hole basis.

Soilminerals.com says this about pH: "Ignore the pH. It will self-correct as the minerals are balanced. Mother Nature and the soil are very forgiving and you do not have to be exact in these proportions. It would be unlikely to find two soil samples taken one foot apart that were identical." So there you have it.

Did you know …?
Soil acidity or alkalinity is determined by the relationship between hydrogen ions to hydroxol ions. Hydrogen, aluminum, iron, magnesium, boron, copper, and zinc add acid to the soil. Calcium, phosphorous, potassium, and molybdenum add alkali.

Typically, azaleas, rhododendrons, laurels, and hollies prefer *acid* soil, which can be achieved by adding sulfur. Acid soil is slower to breed bacteria so it retains undecayed organic matter. Soil pH ranges from 0 to 14, with 0 being most acidic and 14 most alkaline. To make soil more alkaline, add lime to the root zone. Lime is the

alkaline salt of calcium. To make soil more acidic, add sulfur or aluminum sulfate.

Soil devoid of moisture (such as the desert and soil filled with limestone, as is found in Virginia's Shenandoah Valley) are more alkaline because of salt. Neutral pH is 7, which many plants prefer. Soil pH is important since it affects availability of soil nutrients. In some cases, disease manifests if the soil is too acidic or too alkaline.

Flooding alters soil pH. When water vigorously passes through soil, it washes away calcium and magnesium. These nutrients are replaced by acid minerals such as aluminum and iron, which makes the soil more acidic.

My customer, Joan, loves hydrangeas. She tries to produce a blue flower by tweaking pH. Supposedly, the plant produces more pink flowers at higher pH values (alkaline) and blue flowers at lower pH readings (acidic). Okay, but why does a single hydrangea plant produce both pink and blue flowers?

Sun vs. Shade

Full sun requirements can vary, depending upon geographic location and site. Florida is hotter than New Hampshire and the south side of a house is warmer than the north side. The minimum for *full sun* is 3 hours. Other books say 4-5 hours. *Deep shade* means no sunlight, such as underneath a densely-foliated tree, or up against the north side of a building with tree cover. *Part shade* is a location either receiving on-again, off-again sunlight or where there is dappled shade from a *Juglans nigra* (**black walnut**) or *Robinia pseudoacacia* (**locust**) trees, whose leaves are pinnate or smallish and allow sun to pass through its foliage on the branches.

Plants such as *Hydrangea macrophylla* (**big leaf hydrangea**), *Abelia x grandiflora* (**glossy abelia**), and *Weigela florida* (**old-fashioned weigela**) are plants whose sun/shade requirements have changed. These plants used to need full sun but nowadays, they can flower and thrive in moderate shade. The photosynthetic needs of plants are changing.

Look under "culture" in a plant directory and you'll read about sun vs. shade. If it says a plant needs shade, then it shouldn't receive any sun. Examples of shade lovers are *Mahonia bealei* (**leatherleaf mahonia**), *Clethra alnifolia* (**summersweet**), *Aucuba japonica* (**Japanese aucuba**), *Sarcococca hookeriana* (**dwarf sweet box**), *Lamium* (**deadnettle**), *Hosta* (**plantation lily**), *Camellia japonica* (**Japanese camellia**), *Pieris japonica* (**Japanese pieris**), and *Kalmia latifolia* (**mountain laurel**).

If the tag says "Sun," it means the plant needs sun most of the day. Such plants include *Syringa vulgaris* (**common lilac**), *Hollyhock*, *Lagerstroemia indica* or *faurei* (**crape myrtle**), *Ophiopogon* (**mondo grass**), *Buddleia davidii* (**butterfly bush**), *Juniperis* (**juniper**), *X Cupressusocyparis leylandii* (**Leyland cypress**), *Berberis* (**barberry**),

Miscanthus (**Chinese silver grass**), *Wisteria floribunda* (**Japanese wisteria**), and *Viburnum*.

When you see a plant tag with "Partial Shade" or "Partial Sun," consider the following: **Flowering weigela, glossy abelia, big leaf hydrangea, azalea**, *Ilex* (**holly**), *Prunus laurocerasus* (**cherry laurel**), *Nandina domestica* (**heavenly bamboo**), and *Prunus laurocerasus* "Schipkaensis" (**skip laurel**).

Even "full sun" is tricky and only experience with plants helps. I once planted a pair of crape myrtles for a customer, Sandi, who wanted two "pink" crape myrtles situated outside her dining room and living room windows. I doubted these trees would get sufficient sun, since the windows faced east and 15 feet away was an 18-foot tall stand of *Juniperus* trees. But she said, "Let's go with them." We did and they've flowered consistently since. It's possible the brick of the building absorbed morning and noon sun and radiated it back to the trees. Maybe humidity was trapped between the building and *Juniperus* stand (more molecular activity, more heat).

The moral here is "plant with your heart." Sometimes, that works. A healthy attitude can benefit a plant. I have customers who tend to be negative about their plants and *it shows*. I've removed shrubs from customers' gardens because they were "sick, suffering or dying." I transplanted them in my yard, where they revived. So beware—plants listen!

Another thing to remember with sun vs. shade is plant maturity. Camellias generally need shade. Their buds don't like early morning sun, since they burn. But young camellias should not be planted in full sun. There is a camellia on Ridge Road Drive in the Cameron Mills area of Alexandria. It is planted against the west-facing front of an older brick home. The plant gets cooked in the summer afternoon sun yet is healthy. At some point, that plant was young. Possibly, there was a huge *Quercus alba* (**white oak**) tree sheltering it from that sun.

Transplanting

Mature or tap-rooted plants don't like to be moved. One plant that doesn't mind is the **azalea,** even at maturity. Its roots are lateral and shallow and pull free from the soil once the ball is loosened. When uprooted, soil clings to the roots, which is vital for mineral and moisture retention as the plant moves from one location to another.

No tap-rooted plant will move unless moved by bulldozer. *Ilex cornuta* (**Chinese holly**) and *Pyracantha* (**firethorn**) are plants with "iron anchors" for roots. It's best here to saw the root, cover it with mulch and plant ground cover in the area.

Recently, I moved a *Chamaecyparis* (**falsecypress**), *Acer palmatum* (**Japanese maple**), and *Picea pungens* (**Colorado spruce**) from a customer's garden to a median strip on my street. Only the *Picea pungens* survived. The other didn't make it because of time elapsed during the transplant. It's vital to plant an uprooted shrub soon, using existing backfill and some water in the new hole. If the transplanting is in summer, the transfer should be almost immediate.

Successful transplanting depends on existing soil at the new planting site and whether sun/shade requirements are correctly met. If a transplant requires heavy machinery or a team of weightlifters, don't bother.

Trees for Small Spaces

Before planting a tree, research its growth habit and determine whether your location can accommodate its mature height and spread. In the nursery, its modest size can be deceiving. If you have a large yard and no power lines nearby, you might be able to plant whatever tree you choose. But if you have a condominium or townhouse and space is limited, think "modest."

In some cases, a tree can be pruned to fit a space. The Japanese perfected the art known as *bonsai.* If you love the specimen but don't have the space for it to mature, either consider another specimen or plant the one of choice but keep it sized to fit. But remember, the culture (sun vs. shade) has to be a fit.

Modest doesn't mean miniature, however. If a tree reaches 14-16 feet tall, that is small enough for a courtyard planting. If you have a small yard and don't want the tree to grow above the fence or wall line, consider dwarf cultivars or pendulous types. Perhaps you can buy a tree with a larger growth habit but prune it perennially at the appropriate time to keep its habit in check.

Here, I've listed trees for smaller locations. If you have space for a large tree, read the chapter on "Evergreens" or type "trees for open spaces" in a computer search window. The numerous selections will discuss flower, fruit, leaf type, growth rate, culture (sun vs. shade), and its mature size. Always consider "mature size" before buying your tree.

The *Styrax japonica* (**Japanese snowbell**) reaches only 7 feet tall and 5 feet wide. Its white flowers in spring hang below the branch. When the blooms are spent, round fruits dangle in their place.

The *Cornus kousa* (**Japanese dogwood**) is more compact than the native flowering **dogwood** (*Cornus florida*). *Kousa*'s upright flowers in June are ivory and pointed at the tip. *Florida's* flower petals are rounded – like your fingers — at the tips. Leaves are 2-3 inches long and curl to a point. In the fall, miniature, blush pink golf balls form as fruit.

An *Acer palmatum* (**Japanese maple**) also fits a small space. There are many dwarf cultivars that offer maroon, copper, or olive foliage. The leaf is a star shape, which allows sunlight to pass through its foliated habit. When the sun shines through the foliage of the "Bloodgood" cultivar, the leaf margins become highlighted in a fiery red.

If you love the look and scent of the magnolia but haven't the space of the 10th fairway, try the *Magnolia grandiflora* "Little Gem" (**southern magnolia**). You'll get the same flower and leaf of the parent tree but the habit is smaller (12 feet tall and 8 feet wide). There is an interesting Web site devoted to the "Little Gem" at *http://home.att.net/~SpanishMoss/gem.html* featuring an accordion instrumental of "What a Beautiful World," sung by Louis Armstrong.

Don't pass up the *Prunus besseyi* (**sand cherry**). In April-May, half-inch-wide whitish-pink, scented flowers decorate the reddish-brown branches with its maroon foliage. In mid to late summer, purplish-black fruits form. The "small tree/large shrub" reaches only 7 feet tall with a 5-foot spread. It needs sun and when rays hit the branches, the leaves become a fiery red like those of the *Acer palmatum* "Bloodgood." This tree is in the same genus as the *Prunus x yedoensis* (**Yoshino cherry**) trees that surround the Tidal Basin in Washington.

Did you know …?

The serviceberry tree was so named because funeral burials would proceed when this tree bloomed, signaling the ground had thawed enough to dig graves.

Speaking of pinkish-white blooms, give the *Amelanchier laevis* (**Allegheny serviceberry** or **shadbush**) some thought. It is one of the first to flower in spring (March-April) with nodding, 4-inch long

flower panicles. The tree grows 18 feet tall with a 7-foot spread. Following the 5-petaled blooms in summer are purplish-black, sweet fruits favored by birds and used to make serviceberry pie. Serviceberry's leaves become orange-red in autumn.

VEGETABLES

For the beginning gardener, don't worry about early, mid and late season vegetable harvests. Start with just a few plants – your favorites to eat – and concentrate on successfully growing those.

Tomato

The tomato is a "fruit" since it develops from the ovary in the tomato plant's flower. Most but not all fruits contain seeds, according to *www.askoxford.com.* Webster's Dictionary labels the tomato a fruit, although a Supreme Court decision in 1893 deemed it a vegetable, according to *www.howstuffworks.com*.

Native to California, Mexico, and Peru, the tomato is a cousin of the eggplant, pepper, potato and ground cherry. China produces nearly a third of today's tomato crop. The United States and Turkey are the second and third-largest tomato producers, according to *www.Wikipedia.com*. The tomato crop was first cultivated by the Aztecs and Incas as early as 700 A.D., says *www.howstuffworks.com*.

Versatile on the menu but impractical for those with acid reflux disease, the tomato is low in calories but high in Vitamins A & C, says the Ohio State University Extension Office. The plant prefers acidic soil in a pH range of 6.2–6.8.

Did you know…?

Tomatoes should never be refrigerated, since their flavor dissipates when they are stored anywhere below 55°F.

—SOURCE: www.helpfulgardener.com

At the nursery, choose a tomato plant with a straight, sturdy stem the thickness of a pencil. The plant should have 4 to 6 leaves without yellow flower blossoms or fruit.

The Web site *www.helpfulgardener.com* advises readers there are two tomato types: determinate and indeterminate. **Determinates** have finite-growing vines that mature as a compact bush and set fruit all at once. **Indeterminate** tomato vines grow uncontrollably and need support in the form of a cage or stake with ties. Indeterminate tomatoes set fruit throughout the growing season.

Either type is easy to grow from seed. But you can find healthy plants at local nurseries. Furthermore, buying a germinated plant saves waiting time before harvest. If you prefer to grow the plant from seed, create a space indoors near a south-facing window to nurture the seeds in moist soil under a plant light before transplanting outdoors in warm weather.

Tomatoes require sun, so situate the garden on the southwest side of your house, which will receive the hottest sun for the longest duration. If you buy a tomato plant, the temperature needs to be a consistent 50° for planting. It will not set fruit in cool weather, so make sure the overnight low temperatures do *not* dip below 55°. Space the plants 2 to 3 feet apart in rows 3 feet apart. According to www.gardening.about.com, it's wise to bury the tomato plant in the soil, even up to its bottommost leaves.

Tomatoes need heat in addition to sunlight. A helpful hint is to lay plastic in the open, soil areas between plants, which keeps the soil warm. Cut a wide circle in the plastic around each tomato plant to allow for rainwater permeation. When the plastic is down and the plants are in the ground, spread mulch liberally. This extra blanket provides more warmth to the soil.

Wait until your plants have grown 3 feet tall before removing the leaves from the bottom foot of the plant – the area most prone to fungus growth. The Web site *www.gardening.about.com* advises spraying remaining leaves weekly with compost tea to ward off fungus.

Remember, tomato plants need pruning. Pick off suckers in the

crotch of branches, because those won't bear fruit but will drain the plant of water, glucose, and minerals. Be careful not to pick off too many shoots or leaves, since foliage photosynthesizes, creating sugars that later will flavor the fruit, the site said.

Tomato plants can't get enough water. So with hose in hand, be sure to saturate root zones. Avoid late-night watering, which breeds fungus. The University of Missouri Extension Office reports a tomato is 95% water. The plant needs two quarts of water daily until the first fruit yield. During their fruit-bearing stages, the plants need between 2 to 4 quarts of water daily.

Cucumber••

Cucumber vines are leggy, so you need garden space. Plant the seeds after frost warnings end. Warm soil is necessary for germination of seeds, reports the University of Illinois Extension Office.

Cucumber plants are shallow-rooted and, like tomatoes, need ample watering throughout the growing season, especially when fruit sets. For best yields, incorporate compost or well-rotted manure before planting. Soil warmth is critical for cucumbers too, so sheet plastic and mulch are necessary for good fruit yield.

Did you know…?

The first yellow flowers appearing on cucumber plants are male and they provide pollen. They have no pistils (female organs). If pollination of the female flower — which forms later — is successful, a cucumber grows. Anything that disturbs pollination (cold temperatures, rain or insecticides) deters bees from pollinating.

—SOURCE: University of Illinois Extension Office

There are two types of cucumbers: pickling and slicing. Pickling cucumbers can be picked at 4 to 6 inches long for dills and 6 to 8 inches long for slicing. An over-mature cucumber (8 inches or longer) turns yellow and its interior flesh becomes tough. If you leave it on the vine, the plant will stop producing fruit, says *www.cucumbergrowingtips.com.*

Cucumbers, like tomatoes, are mostly water but are high in Vitamin A with a trace of Vitamin C and calcium. Cucumber juice may be applied to the skin. Contained in the fruit juice are chlorine, potassium, and fluorine.

Lettuce

Finally, here is an entry that *is* a vegetable. Functional but tasteless, lettuce is described by Maryland-born filmmaker John Waters in his essay, "100 Things I Hate," as "the polyester of greens," according to Wikipedia.

There are hundreds of lettuce cultivars but six common to farmers' markets and grocery retailers. **Crisphead** or **iceberg** resembles cabbage and has the mildest flavor. Wikipedia tells us the name "iceberg" originated from the method used to transport the crop — on crushed ice in trains back in the 1920s. Iceberg is heat-sensitive and must mature before the summer heat arrives (June) in our area. It also needs more time to mature (85 days) than Romaine lettuce.

Romaine is used in Caesar salads. It has five times the Vitamin C content as iceberg and is more heat-tolerant in the garden. The outer Romaine leaves have a milky fluid that features a bitter herb taste. Harvest, as you would iceberg, before summer's heat arrives. Allow 65 days for the plant to grow before harvesting. To beat the heat, lettuce can be started indoors before transplanting outside.

Did you know…?

Romaine lettuce is used in the Passover Seder. The bitter-tasting plant symbolizes the bitter cruelty inflicted by the Egyptians on Israelite slaves.

—SOURCE: Wikipedia

Vines

Vines provide vertical artistry and are perfect if the depth of a soil bed is narrow. Their habit alleviates the typical squat at a home's front foundation. While upright, vines have modest height and a contained habit. They are perfect for a fence or brick wall.

At the Smithsonian's Hirshhorn Museum and Sculpture Garden on the mall in Washington, U.S. National Park Service gardeners planted ivy in a bed atop the tall wall that surrounds the courtyard. Naturally, the ivy's runners tumbled over the wall to the soil bed below. Then, they planted *Ipomoea* (**morning glory**) in the bed off the courtyard and let those runners climb into the ivy. Passersby, including our landscape design class, wondered what this flowering broad-leafed vine was. It was an interesting concept, letting the "runners" run and mixing color to produce a "homemade" knockout.

With vines, know their winter habit. If a vine is deciduous, you'll be looking at a flimsy, brittle, blanket of stems come winter. So be patient with a vine's dormant state, which is front-and-center when "standing" in your garden.

I'll mention some vines I've installed for customers and you can pick one. Remember, just type in the Latin or English spelling of a plant in any computer search window and you'll find thousands of entries from which to click and observe. We live in USDA Plant Hardiness Zone 6b-7. If you find a vine you like that requires colder temperatures (Zones 1-5) or warmer temperatures (Zones 8-12), they won't be optimum performers in our summer heat or winter chill. Buying a plant on the fringe of our zone (5 or 8) may work. Just about every web site includes photographs and information you may access.

Clematis "Jackmanii" (Virgin's Bower)

Global warming pushes plants to bloom past their scheduled

times, regardless of plant hardiness zone. On Thanksgiving 2007, the temperature in Gainesville, Va. was in the 30s so the overnight chill had to be in the mid-20s. Regardless, a *Clematis* I noticed bore three white flowers flecked with lavender as it twined around a lamppost. December was 10 days away and this *summer* bloomer was vigorous!

The vine of a *Clematis* is herbaceous and fragile, yet vigorous enough where it will twine up a lamppost, fencepost, trellis or old broom handle if you have an English garden. The flower petal is star-shaped and blooms in violet, white, and lavender. The mid-green leaves are very soft, 2 inches long and grow in lanceolate shapes. *Clematis* can be full of flower one summer and without a bloom the next. My mother's *Clematis* one summer featured over 50 lavender blooms and the next summer, none. Absolutely nothing changed about her vine's culture. *Clematis's* flower is bisexual (having both male and female sex organs). What might have happened was a fluke in pollination between the pistils and stamens.

Clematis comes in deciduous or evergreen form among 200 species. The plant will grow in sun or part shade but the roots need to remain cool. If possible, shield the root zone from afternoon sun.

Wisteria floribunda (Flowering Wisteria)

Its main stem is the opposite of *Clematis*. *Wisteria*'s twining vine is as thick as your pinky finger. The woody, deciduous plant produces fragrant racemes of lavender flowers in spring and summer. Then again, I've seen *Wisteria* bloom in mid-November! The leaves are pinnate and lime-green and grow off thin stems. Once the vine is established, the runners can be radically pruned in late summer.

Wisteria never obeys a stop sign. Violet, a customer of mine off Braddock Road in Alexandria, had a 100-foot *Quercus* (**oak**) tree in her backyard. Somehow, there was a *Wisteria* planted near its base. One May morning, I walked into her back yard and looked up at the dominant oak. *Wisteria* runners in full bloom had scrambled throughout the *Quercus* branches. The entire canopy — a giant lavender mushroom — remains one of the most beautiful displays of

flower I've seen. My mother loved wisteria and I took her by for a look. She was awed but later underwhelmed when she returned to her patio-sized *Wisteria*.

Gelsemium sempervirens (Carolina Jasmine)

Five-lobed yellow flowers sit upon opposite pairs of leaves in spring and summer. The evergreen's funnel-shaped bloom with an orange throat is fragrant and grows in part shade or full sun. Its flower size and shape resemble *Jasminum nudiflorum* (**winter jasmine**), which blooms on trailing stems in late January.

Hydrangea petiolaris (Climbing Hydrangea)

This rugged-looking deciduous vine is cinnamon and exfoliates. The specimen bears domed, white flowers in summer. The leaves are ovate and dark green but turn yellowish in autumn. The vine espaliers against a trellis, fence, or wall. It isn't flimsy like some drooping vine foliage. Instead, these sturdy stems attach to anything.

Pyracantha (Firethorn)

Another sturdy vine, *Pyracantha*, espaliers better than any other vine in the landscape. Armed with thorns, there isn't much that will stop it. It offers shelter for birds with its tight and thick growth habit. In the fall, the specimen fruits in orange, red or yellow spherical clusters. The "Mohave" cultivar has orange fruit and is commonly sold in our area. Firethorn has elliptic, dark evergreen foliage that contrasts well with its fruit color. Tiny, white flowers bloom in corymbs shapes in summer. It grows in sun or shade. Visit the base of the pedestrian bridge at the end of Preston Avenue in Park Fairfax that leads to Shirlington. The concrete abutment is covered with espaliered *Pyracantha*.

Lonicera (Honeysuckle)

This deciduous or evergreen climber comes in 180 species. Flowers are fragrant and tubular and show in orange, white, pink, and yellow. Foliage is thick and can be invasive, as can the flower fragrance, which will overwhelm on a summer day. *Lonicera x brownie* has bluish-green leaves and whirls of 2-lipped, fragrant, orange-red flowers in summer.

Before the terminal floral tip opens like a bugle, the long throat of the flower resembles a miniature pipe cleaner.

Mandevilla splendens

This is the only "annual" vine I mention. Like annual bedding plants, you can purchase this vine in mid-April and appreciate its beauty until December. Because of this, they're not cheap. A 6-foot-tall *Mandevilla* will cost $70 but you are buying a mature vine that will soon cover a fence panel or façade in your patio.

A native to Brazil, *Mandevilla* flowers in dark pink, red, or white. The blooms are 5-lobed and 4 inches in diameter, have yellow "eyes" and whitish-yellow throats. Before its flower opens, *Mandevilla*'s bloom is a long, funnel. But the leaf may be just as attractive. Shaped like a football, 5 inches long and 3 inches wide, it is glossy, undulating, and puckered. The flower likes full sun but if you can shield it from the midday sun, that would help.

Customers have brought the plant inside in winter to preserve it with mixed success. Still, for up to eight months of picturesque art in your garden, it's well-worth the expense. Can you imagine driving around the Brazilian country and seeing this flowering vine growing wild?

Lathryus grandiflora (Everlasting Pea)

Native to southern Italy and northern Africa, this herbaceous perennial produces fuchsia-purplish, fragrant flowers in summer. Its petals have rounded ears and each bloom resembles Mickey Mouse's face. The light-green leaves grow densely in an opposite pattern off the stem. Surrounding a lamppost, the stems will fall away in a graceful, not just vertical, habit. The vine grows in full sun or dappled shade. Deadhead the blooms for repeat flowering. Slugs and snails like to lunch on the base of the vine, so sprinkle some rough-edged stone, bits of glass or beer in the soil to deter pests.

Watering

Overhead sprinklers water the leaves, not the roots, leading to powdery mildew and a breeding ground for fungi. Sprinklers are for lawns, children, some dogs, and 100-degree days, not plants.

I remove the nozzle before watering. Spray selections are useless, since all one needs is a steady stream. Watch for the dirt or mulch to "bubble" and you'll know you've soaked the area sufficiently. Always aim the hose end in a low, circular pattern around the base of the plant.

Consider the weather. During July, you'll need to water more since the root zone is losing moisture rapidly. In November, more moisture is retained in the soil, so water less. On a cloudy summer day, water less. When clouds have blocked the sun all day, the root ball hasn't lost as much moisture so it needs less irrigation. On a windy day, water a little more since a steady breeze will sweep moisture out of the soil. Remember, water is essential for mineral intake from the soil and photosynthesis during the growing season.

Try not to over-water. How much is too much? Watch the watered area. If its looks "bone dry" or if you can't stick your finger or trowel into the soil, keep watering, If your your foot starts to sink in the soil, back off. Too much water robs the plant of oxygen. I have seen situations where a new tree planting listed at 45 degrees because a hose was left running at its base for just 5 minutes. The root zone became mush and the tree's ball was as loose as a tooth and couldn't stand straight up. That is over watering! So oftentimes, just use common sense when watering.

Never aim the hose at the inside of the bush, unless you are spraying off lacebugs on azaleas. If you water the inside of a specimen, moisture will remain there on a cloudy or humid day. Overnight

fungus may manifest. Plus, a wet environment invites pest infestation through the soil, air, or stem. Foliage needs to stay dry unless rainwater is the culprit.

If a plant is on a slope, water the high side of the ball, but slowly. If you have a planting bed in a swale, be cautious of water gathering because this will inhibit drainage. Specimens such as *Populus deltoids* (**eastern cottonwood**) or *Betula* (**birch**) prefer what is called "wet feet," which means their roots don't mind sitting in excess water. However, very few specimens tolerate soggy root zones.

Winter Color

What has the most vibrant color in winter? Camellia is my answer. You can buy the shrub 6 feet tall or 2-3 feet tall. *Japonica* is the winter bloomer, showing flowers on and off from November to March. I have "White Ice" on my front porch and its blooms opened in mid-November. Since then, the open and close intermittently. I also have a 2-foot-tall pink *Japonica* in my back yard that bloomed throughout November and December.

Let's not forget the winter fruit displays of these specimens: *Ilex*, *Pyracantha* (**firethorn**), *Contoneaster, Nandina, Berberis, Liriope, Ligustrum, Juniperus, Cornus Aucuba*, and *Viburnum.* Most of the fruit you'll see is red but juniper's fruit is a Wedgwood blue. The *Malus* pome varies from mauve to apricot to burgundy and the cones of the *Cedrus deodara* (**deodar cedar**) are cream. Cones of the *Picea* (**spruce**) family are almost reddish.

Despite the cold, you still can appreciate flowers in winter. *Jasminum nudiflorum* (**winter jasmine**) offers a 5-petaled flower on trailing stems in late January. *Chimonanthus praecox* (**fragrant wintersweet**) blooms white with a purple throat in January-February. As its name reveals, the flower is fragrant. *Mahonia bealei* (**leatherleaf mahonia**) has clustered fragrant yellow flowers that grow off the top leaflets in February-March. Its leaves have red-purple blotches and its terminal points are sharp so watch out if you push your nose up close to a bloom.

An "old" favorite is *Chaenomeles japonica* (**flowering quince**). Who really knows exactly when the flowers will show with global warming? But they do show in March. A *Chaenomeles* blooming in the middle of a barren forest is beautiful and will cause you to hit the brakes if you are driving by. The flower color is a soft pastel but in the sunlight, it becomes illuminated. The cup-shaped, 2-inch-diameter, 5-petaled

flower blooms in pink, red, orange, and white before the shrub leafs out. The eye of a quince flower is yellow, and the specimen likes part shade, thus the woodland.

Maybe the boldest "accent" planting come winter is the *Nandina domestica* "Firepower" (**heavenly bamboo**) whose foliage turns scarlet in winter. Wait until it snows and "Firepower" stands tall like a red flame. That will grab your attention from a block away.

The most striking winter fruit color has to be the hybrid, *Ilex verticillata x serrata.* Its orange-red fruit is like a caution light in the landscape, making it impossible to walk or drive by without double-taking or staring at the heavy fruit production. The tree is a modest grower (6-8 feet tall with similar spread). Look for these cultivars: "Autumn Glow," "Bonfire," "Harvest Red," and "Sparkleberry." The last cultivar's brilliant fruit set lasts all winter and into March. It is commonly found at local nurseries.

There's one more winter color I want to suggest, but not for your garden. Take a walk through the woods in winter and notice the one tree that keeps its broad (not needled) leaf. Amid the tall, brown stands of trees is the light copper foliage of the *Fagus grandiflora* (**American beech**). The beech leaf is serrated on the edge, undulating, and has prominent veins. This is the tree with the smooth, gray bark — so smooth, it invites lovers to carve their initials in a heart.

Winterizing the Garden

Frost occurs when heavy, cold air sinks into the ground, causing soil temperatures to fall below 32°. Expansion and contraction of the soil — called heaving — could damage plant roots. This is what happens to underground pipes that freeze and break in winter.

If you have a plant on the fringe of its climate zone, wrap it in burlap to keep ice, snow and frosty wind away from its branches. To repeat, our USDA Plant Hardiness Zone is 6b-7. If you had a specimen "native" to warmer climates — Zone 7-10 from the lower Carolinas to south Florida — our winters will be damaging. Burlap's perforations allow air and some moisture inside but can prevent winter burn and the breaking of branches due to ice formation. *Gardenia jasminoides* (**gardenia**) is an example of a "tender" shrub in our area, since it is "native" to Zone 7b-10 plant. Thus, a gardener in Savannah, Ga. need not worry about "burlapping" their gardenia in winter.

Since winter wind can suck the moisture from a plant's root zone, you can fight back with burlap or spraying an anti-desiccant (drying) like "Wilt-Pruf," which provides a waxy coating on the foliage to seal in moisture and prevent transpiration. These sprays need periodic reapplications.

Hibiscus will flower inside during winter. The leaves may drop fast but a root ball that is regularly watered should provide the rest of the plant with necessary moisture.

If your holiday tree comes with a root ball and is containered, its chances of survival are much greater. You can try to plant the tree outside in January as long as the hole is pre-dug and the backfill has

been kept warm. Or, you can keep it inside and watered and plant it in March.

One Christmas, I purchased an *Ilex crenata* "Steeds" (**Japanese holly**). It has a small, soft, oval leaf like a *Buxus* (**boxwood**). During the holidays, the branches noticeably grew, poking out from the shrub's triangular habit. With the indoor heat and daily watering, the holly seemed vigorous. Then, during a warm spell in January 2007, I planted it on the west-facing side of my home. It's still living.

Helpfulgardener.com reminded me that cold weather is not only the time to plant spring-flowering bulbs but the time to dig up the non-hardy ones, such as *Canna, Dahlia,* and *Gladiolus*. Allow the tubers to dry out for a few hours before storing them in a cool, dry place in the garage, attic, or basement.

Once the leaves have fallen from your deciduous trees, it is a good time to ask an arborist or tree maintenance official to inspect for disease, splitting, or rotting of big branches. Maintenance done in winter won't interfere with specimen installations during the growing season in your landscape.

Although it is smart to liberally mulch plant root zones, keep it away from the specimen trunk. Rodents look for warm burrows in winter and will make mulch their cold-weather home. Once there, they might chew the bark and keep munching into the cambial layer. In mid-December, I found a black mole trying to crawl into my home. It was cold and hungry, so critters are on the lookout for "vacancy" signs during winter. Oh–try not to pick up a mole. Their teeth are sharp and they do bite.

Cut back perennial foliage that has turned brown. In some cases, leave the seed heads of *Rudbeckia* (**black-eyed Susan**), *Echinacea* (**purple coneflower**), and *Buddleia davidii* (**butterfly bush**), which provide food for birds. For bulbs, always leave green foliage but pull off brown, wilted leaves.

Appendix

Resources

Books

American Horticultural Society Pests and Diseases, by Pippa Greenwood, Andrew Halstead, A.R. Chase & Daniel Gilrein. 2000. New York: Dorling Kindersley Publishing, Inc.

American Horticultural Society's A-Z Encyclopedia of Garden Plants, by Christopher Brickell and Judith Zuk. 1996. New York: Dorling Kindersley Publishing, Inc.

Attracting Butterflies & Hummingbirds to Your Backyard, by Sally Roth. 2001. Emmaus, Pa.: Rodale Press

Complete Guide to Gardening, 2nd ed., by Marjorie P. Groves. 1979. Des Moines, Iowa: Better Homes & Gardens; Meredith Corp.

Dirr's Hardy Trees & Shrubs: An Illustrated Encyclopedia, by Michael A. Dirr. 1997. Portland, Ore.: Timber Press.

The Englishman's Garden, edited by Alvilde Lees-Milne and Rosemary Verey. 1982. London: Penguin Books Ltd.

Manual of Woody Landscape Plants, by Michael A. Dirr. 1998. Champaign, Ill.: Stipes Publishing

National Arboretum Book of Outstanding Garden Plants, by Jacqueline Heriteau with Dr. H. Marc Cathey. 1990. New York: Simon & Schuster.

Practical Small Gardens, by Peter McHoy. 1999. New York: Hermes House

Stokes Field Guide to Birds, by Donald Stokes and Lillian Stokes. 1996. New York: Little, Brown & Co.

Webster's New World College Dictionary, 4th ed. Michael Agnes, ed. 1999. New York: Macmillan Company

The Why & How of Home Horticulture, 2nd ed. by D. R. Bienz. 1993. New York: W. H. Freeman & Co.

Web Sites

About.com: Gardening *(http://gardening.about.com)*
Clemson (University) Extension; Home & Garden Information Center (*http://hgic.clemson.edu/*)
The Helpful Gardener *(www.helpfulgardener.com)*
How Stuff Works *(www. howstuffworks.com)*
Online Encyclopedia (*www.Wikipedia.com*)
Oxford Online Dictionaries *(www.askoxford.com)*
Physicians' Desktop Reference (*www.PDRhealth.com*)
Union of Concerned Scientists (*www.ucsusa.org/global_warming/*)
U.S. Environmental Protection Agency (*www.epa.gov/climatechange/*)
USDA Graduate School (*www.grad.usda.gov*)
Way Beyond Just Organic (*www.SoilMinerals.com/*)

USDA Graduate School

The USDA Graduate School in Washington was founded in 1922 by the U.S. Department of Agriculture during the Warren Harding Administration. It was a forum for federal government employees to enhance their careers by furthering their education.

The school offers a wide variety of classes and programs, ranging from government-based specialties to landscape design. The school annually serves 200,000 participants in nearly 1,000 courses.

Since its inception 85 years ago, the USDA Graduate School has embraced educational media new to adult education. Beyond the instructor-led classroom and correspondence programs, the Graduate School provides condensed seminars, on-site workshops, distance learning, online training and satellite, video and computer-enhanced programs for its professional student.

I never worked for the federal government, yet I've stepped into many federal buildings. I embraced the career-student environment and learned as much at USDA as I did earning my B.S. in journalism from Northern Illinois University in 1977. I met federal retirees, entrepreneurs and lovers of plants. One woman, Sally, became a

study-buddy and friend. She loved plants and taught me a great deal through her enthusiasm on Metro commutes, walks at the National Arboretum and class-sponsored field trips.

In the Landscape Design program, the only time I sat at a desk was for the final exam. Otherwise, we were outside, walking the 440-acre valleys, hills, and vistas of the U.S. National Arboretum. Our professors, Lisa Maranto, Joel Lerner and Lee Gordon — had the world's finest visual aids at their fingertips. What a way to teach — and what a way to learn!

—Bill Sullivan
February 2008

Glossary

backfill: dirt from the hole dug to house a plant

cambium: a layer of protective cells between the wood and bark of a tree trunk

conical: cone or bullet-shaped growth habit; *Thuja occidentalis* (**eastern arborvitae**) is an example; a specimen with a conical habit situates well at an inside corner of a building, filling "dead" space and moving the eye from the corner back into the landscape

conifer: a cone-bearing plant; *Pinus* (**pine**), *Picea* (**spruce**), and *Abies* (**fir**) are examples

corolla: the envelope or petals of a flower that surround the pistils and stamens

corymb: flower structure where individual stalks grow out from different points near the top of the stem

cultivar: a variety that is grower-altered in a greenhouse or laboratory; unnatural

deciduous: a plant that loses its foliage in colder weather; evergreens lose their foliage but constantly replenish their needles

dioecious: each sex confined to a different plant; *Aucuba japonica* (**Japanese aucuba**) and *Ilex* (**holly**) are examples. To have fruit on the female plant, a male plant must be planted nearby (within 50 feet) for cross-pollination

dormant: non-vegetative state occurring in cold weather when photosynthesis is inactive

drupe: a fleshy capsule where a seed is enclosed in a stony (hard) endocarp (e.g., cherry)

espalier: one-dimensional growth habit along a plane (wall, fence, window); usually the habit of a vine; to "espalier" means to cover, mask, decorate

exfoliation: the natural peeling of a bark in either long strips or ovals

fascicle: a "container" that secures the needle bottoms of an evergreen

flower: an axis/stem bearing one or more pistils and one or more stamens or both and surrounded by a corolla (numerous petals)

fruit: a ripened ovary; follows the flower
habit: the shape of a specimen; how it looks as it grows
hardy: able to survive a Plant Hardiness Zone's winter
herbaceous: non-woody; just stems; a succulent; *Sedum* (**stonecrop**), *Hosta* (**plantation lily**), and *Dicentra* (**bleeding heart**) are examples
hip: orange-red fruit of *Rosa* (**rose**); spherical shaped and the size of a nickel
invasive: a specimen "relocated" to an unnatural geographic area; term applied to a plant that "steals" sunlight, ground water, oxygen, and space from naturally occurring plants
knees: softball-sized bumps off the exposed roots of a tree; the *Taxodium distichum* (**common baldcypress**) exposes these readily as it grows around swamps and bogs
leader: the primary trunk or shoot of a tree or specimen
leaf: the organ of photosynthesis; foliage of a plant
lenticel: a pore or opening, usually in circular patterns, such as with the *Prunus* (**cherry**) tree where gaseous exchanges take place between the inner cells and the outside atmosphere
margin: the edge of a leaf; can be entire (smooth), serrated, toothed or scalloped
mature: growth stage of a plant where rate of size increase is reduced; in some cases, a specimen will not flower or fruit until it has reached a certain stage of maturity, as is the case with *Nandina domestica* (**heavenly bamboo**)
monecious: having both sex parts on the same plant; the *Ficus* (**fig**) and *Tsuga* (**hemlock**) are examples
native: when and where a plant naturally occurs, colonizes, and grows
panicle: flower structure where flower stalks grow off the those from the main stem
parthenocarpic: self-pollinating, thus requiring no mate
pistil: female part of the plant containing the ovary
phloem: vascular tissue that transports sugars throughout the plant's cells
photosynthesis: the process by which an organism converts solar energy into chemical energy in order to live

Plant Hardiness Zone: one of 11 geographic/climatic areas designated by the U.S. Department of Agriculture; every plant is native to a specific zone

pollen: microspore (in anther of stamen) that contains male sex cells

pubescent: having thick, short, soft hair; *pubescens* is Latin for "downy"

raceme: flower structure where individual stalks grow off the sides of the stem

remontant: a plant that blooms more than once during the growing season

samara: winged, dry fruit of the *Acer* (**maple**) tree; commonly called "whirlybird"

sap: fluid inside a plant's cells that contains water, food, and minerals

seed: a ripened ovule containing an embryo

stolons: underground runners with fibrous roots that germinate above-ground shoots

stoma: a microscopic pore in a leaf through which a plant transpires water and oxygen

sucker: a branch or shoot growing wild from the root; it usually is green and different looking than the upper branches

trifoliate: three-leaved at the branch tip; examples are *Carya* (**hickory**) and *Rhus radicans* (**poison ivy**)

tuber: fleshy part of an underground stem; some, such as *Solanum tuberosum* (**potato**), are edible

twig: shoot of a woody plant part that is the current season's growth

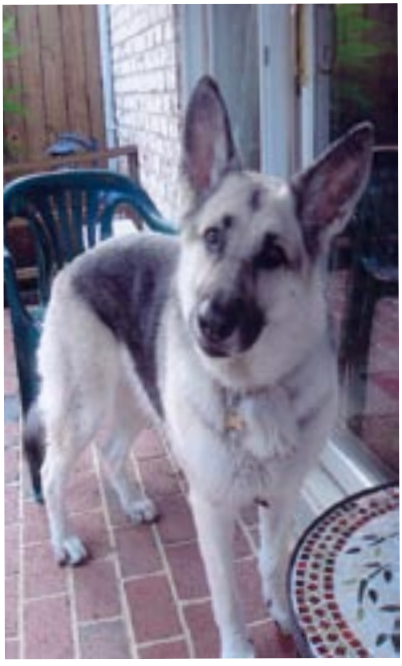
umbel: flower structure resembling an umbrella; flat-topped with many flowers emerging from one point beneath the crown

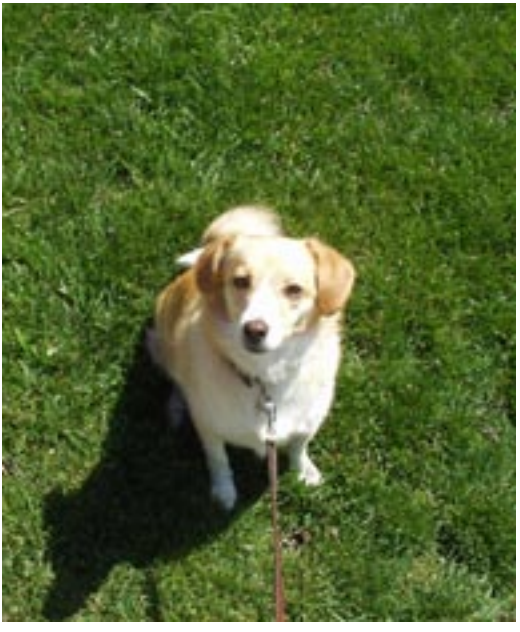
wood: dead tissue of a tree or plant comprised of xylem tissue

xylem: vascular tissue of a plant that transports water and minerals from the plant roots to the stem, bud, and leaf; supports softer tissues so they are erect rather than limp

Friends of Bill

One of the fringe benefits of my job is getting to know my customers' pets, many of whom keep me company while I work. Here are just a few of them.





A customer of mine, Debra Rose, took this photo on her Northern Virginia balcony. I had filled her flower boxes and containers with an assortment of spring and summer perennials. For this mother dove, the yellow marigolds were a seasonal home. “I even petted her,” Debra said.

CREDITS:
Front cover: Bill with his hounds, Pepper and JoJo, by Chester Simpson
Back cover: Mourning dove with nestlings by Debra Rose
Editing and design: Joyce Dexter

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