

News Edition

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Redesigning Your Landscape

Have your watering, fertilizing, and pest control programs worked a little too well? You may think so if one day you try to look out your front window and find that all you see is shrubbery, or if the pathway to your front door is blocked by the thriving junipers you planted 15 years ago. Dr. Bonnie Lee Appleton, an extension nursery specialist in Virginia Beach, Virginia, has done extensive research on renovating overgrown landscapes. Her suggestions and techniques are described in detail in her book, *Landscape Rejuvenation*, published by Storey Communications, Inc., Pownal, Vermont, and in more abbreviated form in the September 1987 issue of *The Virginia Gardener*, published by the Virginia Cooperative Extension Service. Here are some of her observations:

An overgrown landscape can be an inconvenience and even an eyesore, but many of us are hesitant to tackle the problem of doing anything about it. The situation can be insidious, developing over a period of years until it becomes suddenly noticeable—and even a little overwhelming. But take heart: there are manageable ways to tackle the problem.

Reasons to Renovate

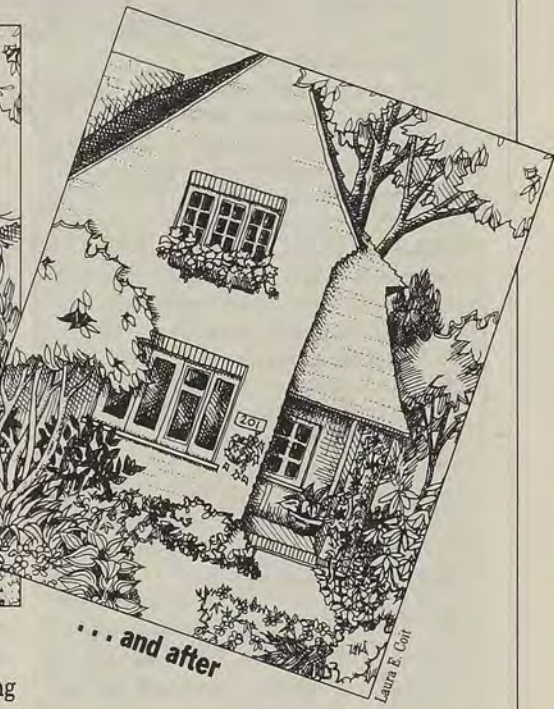
There are many reasons to redo a landscape. Foundation plantings may have originally been installed too close together in an attempt to create an instantly “mature” landscape; as they grow, they quickly crowd each other until individual plants appear lost in one large mass of shrubbery. Existing plantings may not have



Before redesign . . .

been properly planned or cared for, resulting in sickly, unattractive plants or in designs that, when they are older and larger, glaringly point up the flaws in the original landscape plan. If you've purchased an older home, you may want to replace a design that is not pleasing to you, or you may find that the landscape has been neglected by the previous owner.

You may simply need to redesign your landscape because you did take excellent care of your plants, and they flourished to the point where they outgrew their spaces. Or maybe your family's needs have changed. Many horticulturists believe that home landscapes should be systematically reevaluated every 10 to 15 years.



. . . and after

Developing a Plan

Before you even think about digging up, replacing, or removing plants, it's best to get out a pencil and paper and develop a plan, preferably one that can be prioritized and implemented gradually over time. You may find that with a careful analysis of the situation you can minimize the extent—and the expense—of your renovations.

First, draw your house and landscape to scale. Include the house and permanent features (driveway, patio, swimming pool) on a piece of paper. Make the drawing large, so you can include notes. Then tape a piece

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American Horticultural Society

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of tracing paper over the house plan and draw all of the existing plants. Make plant and environment notes—areas of sun or shade, wet areas, wind direction, etc.

Make note of visual or aesthetic problems, hazards, and plant-related problems. Visual problems may include plants that are out of proportion; dead or storm-damaged plants; plants that may be healthy and well-proportioned, but that fail to fit into the particular landscape situation; plants whose colors don't fit in with those of the house or with those of other plants; designs that are formal to the point of rigidity; or a design that is either too sparse or too cluttered.

Plant-Related Problems

The most obvious plant-related problem is the presence of dead plants that have never been removed from the landscape. Others include diseased plants, plants that exhibit poor growth and few flowers, plants that require frequent pruning, or bare lawn areas that are compacted due to foot traffic.

Plants become hazardous when they block or obscure something—a motorist's view, a house number, a door, driveway, or utility access, a stop sign—or sometimes when the branches of a tree grow into power lines or roots grow into water and sewer lines. Climbing plants such as ivy may cause damage to trees or the mortar of masonry

walls. Trees that have been weakened to the point that their branches are damaged may present a hazard.

Note the condition of each plant as either good, marginal, or poor, using different colors to indicate each condition. A plant that is in good condition may either remain where it is, or be moved to a more favorable location. When a plant is in marginal condition (low growth rate, few flowers, dead branches), you may want to compare the cost—in time and money—of rejuvenating it through feeding, pruning, etc., with the cost of removing and replacing it. If a plant is in poor condition, make a note to remove it.

Once you have finished this assessment of the current landscape, make a plan for renovation. Use another sheet of tracing paper over the base plan and the assessment overlay. Draw in those plants you feel should stay, either in their current locations or in different locations.

Next, make a list of your future plans for the landscape—a perennial garden, more shade, a swimming pool, a deck—and compare this list with the overlay of the plants you wish to save, and design your new landscape accordingly. Draw in the new permanent features first (fencing, swimming pool, patio), then add the new planting areas. Once your new design is complete,

This Bud's For You

And not only the bud, but the whole plant, as well! Even inexperienced gardeners know that the daylily (*Hemerocallis*) is beautiful, easy to grow, relatively free of pests and diseases, has a long bloom season, and comes in a breathtaking variety of colors. But even many veterans don't know that the daylily is also a marvelous gourmet vegetable.

For centuries daylilies have been part of the fine tradition of Chinese cooking. All parts of the plant are edible. Some enjoy the first shoots as an early green. Others harvest the small tubers attached to the roots, using them as a substitute for peas. (These are the new small tubers that have not aged sufficiently to have turned brown, but are a pure white.) The skin can be scraped off with the fingernail. Eaten raw in salads, they are crisp like water chestnuts or radishes, but are never hot like some radishes. When cooked they remain crisp and can be added to Chinese dishes.

What does a daylily taste like? Flavors are difficult to describe. It may be said to resemble a combination of green beans and mushrooms; some think it resembles the

taste of asparagus. Flavor is strongly influenced by fragrance, so that scented varieties may be described as sweet, while those without a strong scent are described as what we might expect in an ordinary vegetable. Daylilies may be harvested throughout the blooming stage. For the sake of convenience, many pick the buds the day before the blossom opens, or even when it is less mature than that. Others prefer to enjoy the plant to the fullest possible extent, using both open and spent blossoms.

Information about daylilies, including recipes on how to prepare daylily buds for eating, is available from the American Hemerocallis Society in their book, *Daylilies*. For a copy, send a \$5.00 check to The American Hemerocallis Society, Elly Launius, Executive Secretary, 1454 Rebel Drive, Jackson, MS 39211.

—information courtesy of The American Hemerocallis Society

Mark your calendars for the 1989 AHS Annual Meeting, July 26-29 in Minneapolis/St. Paul.

you can establish priorities and get some idea of how much you can do at a time.

Your plan may take several years to implement. Just as in drawing your plans, permanent areas should be completed first, to minimize destruction of plantings. Then, consult the overlay showing which plants to remove or move, and complete that part of your plan. Add new plantings as time and money permit. Maintain good cultural practices to keep your new landscape looking its best.

Tips on Winter Care of Boxwood

Boxwoods (*Buxus* spp.) need water in winter; most provisions for winter care of boxwoods are aimed at this need. When the ground is frozen, moisture lost through the leaves cannot be replaced by the roots. Young or newly-transplanted boxwoods suffer more than mature, established ones. Water deeply during warm spells to replace moisture lost to sun and wind when the ground is frozen. This is most important during the first year after transplanting, especially for fall-planted shrubs.

Mulching

Mulch plants to retain moisture, to lessen the depth of frost penetration, and to avoid sudden changes in soil temperature. Apply pine needles, ground bark or straw about two inches deep, but not close to trunks. Use only materials that readily allow rain and melting snow to flow through to the soil.

Snow Removal

To avoid broken branches from heavy snow build-up, remove snow from bushes by tapping with a broom handle or, if snow is powdery, by gently sweeping them off. *Do not try to remove ice; wait for melting.* Be aware that applications of salt or chemicals to melt ice on walks or driveways may create undesirable run-off for boxwoods and other evergreens.

Winter Plucking

When the weather permits, "pluck" plants that need it and clean out the interiors. Plucking or thinning helps produce a strong, healthy plant because it allows light to enter the interior of the plant. Often poor or declining boxwood is caused by the lack of annual thinning. This plucking can be done by hand or by using hand pruners. It is a slow operation that takes time, especially if you have many plants.

AHS Bulletin Board



Paul Eckes, who popularized poinsettias as the Christmas flower of the United States, admires a gerbera in Virginia Beach during the AHS Chesapeake Bay tour.

Chesapeake Bay Tour 'Terrific'

Nearly 100 people from 24 states and Canada visited public and private gardens along the Chesapeake Bay, October 15 to 21, on one of five garden tours sponsored by the American Horticultural Society last year. In 1989, AHS will sponsor eight such tours, including a March tour of the Pacific Coast on which participants will visit the William Randolph Hearst estate and San Miguel.

The Chesapeake Bay group, hosted by AHS President Carolyn Lindsay and her husband Bob, began the tour with the 22-acre Ladew Topiary Gardens in Monkton, Maryland, then boarded the Nantucket Clipper at Baltimore and sailed up the Severn River to Annapolis, where they visited the Paca House and Garden of 1765 vintage and Georgian architecture. At Saint Michaels, Maryland, they visited the San Souci Estate and the 20-acre formal garden at Wye Plantation, then docked at Yorktown, where they were bused to three private gardens in Virginia Beach. The cruise ended in Washington, D.C., with a tour of Dumbarton Oaks and a reception at AHS's River Farm headquarters.

During the cruise Paul Eckes—revered as the man who made the poinsettia the Christmas flower throughout North America—offered advice on their proper care. Eckes called the trip "marvelous, with wonderful weather."

Although high winds resulted in small-craft warnings on Linkhorn Bay the day of the Virginia Beach visit, Wichita, Kansas, residents Robert and Martha Parriott said windy weather is something they're used to

at home. "It's great to see how people garden in other parts of the country," they said.

Peter and Beth Thevenot of Baton Rouge, Louisiana, called the tour "terrific." Said Peter Thevenot: "We've seen beautiful lawns and gardens ever since the tour began. The fall colors are particularly beautiful to us, since everything's still green in Louisiana."

For Adolph and Ginny Rosengarten of Philadelphia, Pennsylvania, and Robert and Darragh Weisman of Ann Arbor, Michigan, the tour seemed like a trip home. Adolph Rosengarten was stationed at Fort Monroe while in the Army, and Robert Weisman served in the Navy at Norfolk. But the Weismans, who open their own garden to visitors every July, found they couldn't go home again: an interstate highway had displaced their former living quarters.

Interviews for this article were conducted by Robert Stiffler, garden writer for the Norfolk Virginian Pilot-Ledger-Star, who joined the group for part of the tour and wrote about it for that newspaper. Excerpts from his story are used with his permission.

The Winner!

Dr. Thomas Ameson Jr. of Birmingham, Alabama, will be joining other AHS members in the Leeward Islands January 21-28 as a result of his having won the society's member recruitment contest. Congratulations, Dr. Ameson!

'Bonica' – The Beautiful Beginning

The coming season may be your opportunity to try the promising new shrub rose from the House of Meiland, 'Bonica' (variety: meidomonac). 'Bonica' is more than a landscaper's rose, according to Dr. Henry M. Cathey, director of the U.S. National Arboretum in Washington, D.C. "We are finding, in its third year in the National Herb Garden, that we have a whole new set of opportunities to use roses to solve the dilemmas of the modern garden."

Although 'Bonica' was developed in France, it is widely available throughout the United States. In fact, it was an All-America Rose Selection in 1987. While each individual flower does not have the elegant color or fragrance of the highly evolved hybrid tea, the plant offers some practical advantages in gardens and public spaces:

- ▶ Flowering: Continuous displays do not require the removal of spent flowers all summer long.
- ▶ Fragrance: Wisps of spicy aroma surround each flower.
- ▶ Foliage: Deep green glossy leaves have seven leaflets.
- ▶ Hips: Abundant, glowing, golden yellow hips are present through the winter.
- ▶ Roots: Plants grow on their own roots.

'Bonica' has a number of potential uses, as:

- ▶ Hedges: Grows with shoots clear to the ground, limiting access to a space; will not "stool" out to become a pest.
- ▶ Ground Covers: When mixed with perennials, grasses, and shrubs, the plants can compete effectively all summer long without special care.
- ▶ Slopes/Banks: New growth emerges from the old root system, which forms a stabilizing structure. Plants will literally clothe the area with pink flowers.
- ▶ Aerial Planters: The winter-hardy rose can be left exposed over the winter in aerial planters.
- ▶ Bedding: Traditional sites of other once-flowering shrubs and landscape roses can be replaced with a dense, ever-blooming shrub rose.

With a whole new color range of sister seedlings of 'Bonica'—known as the Meiland family—now appearing, can rainbows created by shrub roses be far behind?



'Bonica'

Conard Pyle Co.

Bonica Versus Hybrid Teas

	Hybrid Tea	'Bonica'
Color	Wide genetic variability	Shell pink
Vigor	Must be pruned to encourage continuous flowering	Continuous production of new flowering shoots without deadheading
Foliage	Varying degrees of disease and insect resistance; most must be sprayed with pesticides	Disease-tolerant; glossy deep green foliage through growing season
Use As Hedging	Produces top growth only; cannot withstand physical pressures without damaging plants	Basal shoots continue to form, creating a dense, heavily thorned barrier
Early Spring Pruning	After growth resumes, select outside buds to regulate the shape of the plant	Cut back to six inches yearly to maintain a dense, compact barrier, or prune only every three to five years to rejuvenate plants
Summer Pruning	Roses require frequent removal of spent blossoms to encourage the development of new shoots	Unpruned plants accumulate yellow-orange rose hips while new shoots form and flower continuously over the entire growing season
Fall Pruning	Cut back overgrown plants	No pruning required for overwintering; pruning removes showy hips

Regional Notes



► Dr. Carol Crosswhite, of Boyce Thompson Southwestern Arboretum in Superior, Arizona, reminds gardeners in her region that they're particularly lucky at this time of year—early spring garden chores help work off the extra pounds gained during the holidays! She gives the following general advice to gardeners in the low desert regions:

Now is the time to plant roses and bare root fruit trees, along with perennials such as shasta daisies, delphiniums, and hollyhocks. Annuals such as pansies, petunias, and stock can go in now for instant color. There's still time to put in cool-season vegetables for a March harvest, and seeds for summer vegetables can be sown indoors for later planting out.

Put your living Christmas tree outside now, and keep it well-watered and in partial shade for a while. Be vigilant with your weeding tools to keep winter weeds down. And don't forget about watering—temperatures as high as 70° F can easily occur in this period.

You can now fertilize annuals and vegetables, lawns, and citrus trees; you can prune roses, grapes, and deciduous trees. If you have frost-sensitive plants, be vigilant about watching the weather reports—you may have to protect these plants with frost blankets or other protection, or put them in a greenhouse, if you have one.

► Walden Valen, of the Strybing Arboretum and Botanical Gardens in San Francisco, California, says garden tasks in the bay area at this time of year depend heavily on the presence or absence of rain, and advises gardeners to take full advantage of any sunny Saturday that might come along! You can plant annuals such as primroses, violas, and snaps and perennials at this time of year, along with cole crops, and you can start summer vegetables for setting out after March 15. Plant bare root shrubs, roses, and vines now

and prune dormant shrubs; if you have early-spring flowering shrubs, wait until after they have blossomed.

Do your spraying of dormant trees, especially fruit trees, with oil sprays, and choose your camellias, rhododendrons, and azaleas now, while they are in bloom. Plant summer-flowering bulbs such as iris and lilies.

► Cathy Hills, of Hodges Gardens in Many, Louisiana, says January is major cleanup time in this region. Gather pine straw and redo your roses, and keep an eye on flower beds, which may need water. Watch for severe freeze warnings; if they occur, water down your azaleas and roses to keep them warmer than the temperature of the air.

► Norm Freel, vice president of horticulture in Cypress Gardens in Florida, noted that the microclimate of central Florida poses the risk of freeze damage to tropical and subtropical plants until the first week of April. Non-hardy species should be covered with a tarp or cardboard box in the event of frost, and in a freeze, may even need a heat source, such as a lightbulb. Potted plants can be moved into a garage. If they are too tall, they can be protected from frosty blasts by being placed on their sides and covered with a blanket.

This is a good month to plant deciduous trees. However, while gardeners in south Florida often use this time of year for such house-cleaning chores as pruning, in central Florida heavy pruning of established trees is ill-advised just yet, as it may stimulate new growth that will be vulnerable to freezing temperatures. The winter vegetable garden may need a light fertilizing or spraying for insect control; if you have seeded the vegetable garden with rye or other "green manure," it may need mowing. Otherwise, January is a good time to rest up before rototilling in February.

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Black Seedless Grape May Soon Be Available

The search for a good, black, seedless grape cultivar has been going on for a long time, but a breakthrough appears to be on the horizon at California State University's Fresno University Vineyards.

In 1985 several promising new experimental seedless vines obtained from the United States Department of Agriculture's (USDA) research lab were planted in the vineyard, where new cultivars come under close scrutiny for potential yield, fruit quality, time of maturity, and cost to grow. Ratings of these new plants identified two black seedless cultivars that look very promising; one that matures early and one that matures in mid-season.

Experimental Blocks

Fresno researchers planted 30 vines each of 12 new cultivars from the USDA in a completely randomized block design. For comparison purposes, standard selections of 'Flame Seedless', 'Perlette', 'Ribier', 'Ruby Seedless', and 'Thompson Seedless' were planted in a single block consisting of six vines each.

All vines were established from rooted hardwood cuttings, and vine training was carried out during the 1986 and 1987

seasons. Standard cultural practices, including drip irrigation, have been used.

Two additional new cultivars were planted in a nursery row and transferred to the experimental block in the spring of 1988.

Varietal Responses

A data base is being established on how each cultivar responds to pruning, thinning, girdling, and other cultural techniques. The performance of new selections is also being compared to existing major table grape vines grown under central San Joaquin Valley conditions. In order for a new cultivar to be released to growers, it has to be superior in terms of yield and fruit quality, and has to fill existing gaps in the marketing season for fresh grapes. Cost of production is also an important consideration.

Five Top Rated

Of the 14 new cultivars tested so far, five have been given a number one rating. In addition to the two black seedless cultivars whose performance is so encouraging, researchers have rated an early-maturing white seedless, a late-maturing red seedless, and a mid- to late-season-maturing black

seedless as highly desirable. Five cultivars received a number two rating, which indicates they have moderate potential but require further testing. Four selections were rated undesirable and removed from the experimental plot.

Azaleas Can Serve as "Go-Between" Ground Covers

Tucking smaller, low-growing, non-competitive azaleas among and in front of larger specimens as ground covers in preference to the more traditional vincas, ivies, and pachysandra is an idea that can bring additional color to your garden.

The flattest and lowest-growing azaleas are Delaware plant hybridizer Polly Hill's 'North Tisbury' azaleas, which come in beautiful shades of pink and red, and South Salem, New Yorker Bob Carlson's introduction, the white azalea 'Flat Out'. These plants will creep and crawl along the ground, spreading as much as six to eight inches in all directions each year, reaching three to four feet in diameter in ten to 15 years. They remain low, rarely reaching more than 12 to 18 inches tall. They bloom in June and July, after most other azaleas have finished.

Particularly hardy but not widely available is the *nakaharai* species, which ranges from pink to salmon. They rarely get as high as 12 inches and spread up to three feet. Less hardy but easier to find are 'Pink Cascade' and 'Flame Creeper', which may only get two to three feet tall and spread from three to four feet in diameter.

Slightly more compact and mounding in their growth habits than the 'North Tisbury' cultivar is 'Azalea Petite'; and if you're looking for slightly larger "go-betweens," Robert Gartrell's 'Robin Hill' azaleas are highly recommended. (Gartrell, a plant hybridizer working in New Jersey, developed 40 to 50 azalea hybrids). Low and compact, the 'Robin Hill' azaleas stay less than two feet in height. Individual big, showy, saucer-shaped blossoms appear in muted pastels. Most bloom from late May into June, nicely extending the blooming season.

Because these azaleas root as they spread, they are particularly easy to propagate. They are also useful in hanging baskets or on the top of a wall. Other low growers are the *Rhododendron mucronatum* hybrids, which have a spreading, billowy growth habit and an ability to "face down" taller, leggy azaleas and rhododendrons.

Desert Trees for Urban Landscapes Brochure Available

The Tucson chapter of the Arizona Native Plant Society recently released a brochure on *Desert Trees for Urban Landscapes*. This is the first in a series that will provide information on low-maintenance, low-water-use vegetation recommended for beautification of residential and commercial properties. *Desert Trees* provides a detailed description of 10 trees with full color photography and an easy-to-read chart that compares the features of each.

Trees were evaluated using six major criteria:

- An attractive appearance
- Cold hardiness
- Moderate to rapid growth
- Resistance to most local pests and diseases
- Low water requirement
- Availability at local nurseries

The primary goal of the Arizona Native Plant Society is to promote water conservation; they also advocate the preservation of the desert character of Southern cities. Thus, most of the recommendations are either native trees, which provide the best habitat for local wildlife, or other arid-adapted species that blend well into desert landscapes. All trees are listed as low-water-use/drought tolerant plants by the Southern Arizona Water Resources Association or the Arizona Municipal Water Users Association.

Copies of the brochure can be obtained by contacting the Arizona Native Plant Society, Urban Landscape Committee, P.O. Box 41206, Tucson, Arizona 85717. Include \$1.00 with a self-addressed, stamped, business-size envelope for a folded brochure. The brochure is also available as a poster in a mailing tube for \$3.00. Prices are discounted on larger orders; write for information.

The Arizona Native Plant Society (ANPS) is a nonprofit organization dedicated to providing knowledge and promoting understanding of plants indigenous to or adapted to Arizona's arid and semi-arid regions. ANPS sponsors meetings, field trips, workshops, and a quarterly newsletter.

43rd Williamsburg GARDEN SYMPOSIUM

April 9-12,
1989

Colonial Williamsburg Foundation and the American Horticultural Society invite you to come to Williamsburg amid the glory of spring for America's oldest and most prestigious annual gathering of garden enthusiasts.

Fourteen authorities from around the United States will discuss the theme, *Winter Dreams; Spring Delights*, through practical and entertaining presentations, tours, exhibits, and clinics. The rhododendron will be the featured flower, Cincinnati the honored city, with a special program on its horticultural accomplishments. An optional tour will be offered to see the azaleas at the Norfolk Botanical Gardens.

Topping it all off will be an optional three-day post-Symposium trip, April 13-15, to private and public gardens on Virginia's Northern Neck arranged for the Symposium by the American Horticultural Society.

Speakers in order of appearance are:

Marlene Holwadel, Cincinnati, Ohio, Park Commission, "Cincinnati's Gardens: People Make the Difference"

Allen Lacy, Linwood, New Jersey, garden writer, "A Gardener's Winter Dream"



M. Kent Brinkley, Colonial Williamsburg landscape architect, and *Marley Brown III*, Colonial Williamsburg director of archaeological research, "Lessons from Colonial Williamsburg Gardens: Recreating the Shields Tavern Gardens"
Polly Pierce, trustee

and past president of the New England Wildflower Society, "Great American Gardens: Garden in the Woods"

David Leach, Madison, Ohio, plant hybridizer, "Tomorrow's Rhododendrons"

J.C. Raulston, director of the North Carolina

State Arboretum in Raleigh, "Gardens for the Forgotten Season"

Harold H. Cooke, Runnemedede, New Jersey, flower arranger and florist, "Flower Arranging in the American Style"

Don Shadow, Winchester, Tennessee, nurseryman, "New and Unusual Plants for the Spring Garden"

Cherie Kluesing, Boston, Massachusetts, landscape architect, "The Changing Image of Sculpture in the Garden"

Russell Morash, creator and executive producer of the weekly PBS television program, *Victory Garden*, on the fascinating story of *Victory Garden* and its impact on American gardeners.

Other specialists are *Henry Marc Cathey*, of the U.S. National Arboretum, *Carolyn Marsh Lindsay* and *Frank L. Robinson* of the American Horticultural Society, lecturer and writer *Frederick McGourty*, and the Colonial Williamsburg Horticultural staff.

Think Spring! Come to Williamsburg for the lovely blossoms and an opportunity to gather helpful hints about all four seasons. For a registration folder, please mail this coupon, or call 1-804-220-7255.

Sponsored by The Colonial Williamsburg Foundation in conjunction with the American Horticultural Society.

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Williamsburg Garden Symposium

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Tips on Oleander Culture

The nightmarish drought of last summer has launched a search for less thirsty plants. The oleander—a flowering evergreen popular as a landscape shrub in temperate zones and which can be potted and wintered indoors elsewhere—requires very little water once it is established.

The oleander is championed by the International Oleander Society, which began as the National Oleander Society in 1967 and changed its name last year to reflect the fact that it now has members as far away as Spain and Israel.

R. L. Syler, president of the society, said 1988 was a banner year for the oleander in the society's headquarters city of Galveston, Texas, where city plantings made a spectacular comeback from the devastation wrought by tropical storm Alicia in 1983.

In the colder climates of the North, oleanders can be grown as container plants for patios and porches. They are not particular about their potting medium, but should be grown in full sun outdoors. They should be brought indoors during the months that there is any danger of frost, and exposed to as much sun as possible.

In California, Texas, Arizona and other Western states, oleanders are frequently used as highway plantings, noted Betty Head, the society's corresponding secretary and the editor of its newsletter, because of their ability to thrive under a diverse range of weather and soil conditions and with a minimum of care.



Nerium 'Shari D'

Courtesy of Turner Landscape, Inc.

The durability of the oleander is illustrated, suggested Head, by the relatively minimal care given to them when set out as plantings along California highways. Head gave the *American Horticulturist* permission to reprint the outline of that care, as well as some pruning tips, that appeared in the fall issue of the society's newsletter, *The Nerium News*. (*Nerium* is the oleander's genus name.)

Plants from one gallon cans are set out, covered with a mulch of wood chips, and watered once every two weeks all through the warm months. At the end of the season, watering is reduced to approximately once every three to six weeks, depending upon general conditions. By the end of the second season, watering frequency is reduced. In some areas, further watering is postponed until the end of the third growing year. Highway plantings are given a soluble nitrogen fertilizer delivered in the irrigation water.

The blooming schedule is longest in the warm desert areas of California, beginning in May and continuing to December. In the interior valleys of northern California and in most of southern California, the season lasts until October. The season is shorter as the climate grows cooler, and only a few flowers are produced in foggy coastal or shady areas.

Pruning Tips

Since oleanders grow so well, they often get "out of hand," and questions arise about when and how to prune. Without pruning, bushes become loose, open, and unsightly. The bush should be examined for shape and size as soon as the year's blooms have faded.

There is some confusion in references on the proper time for pruning outdoor plants. Some sources say that oleanders should be pruned in the spring. While selective pruning can be done in the spring, cutting a bush back severely at this time will lead to

a nonexistent or very late blooming season.

If you need to renew your entire bush, the practice in temperate areas is to trim it back to the ground; in Galveston, this is done in the late summer as soon as the flowers have faded. This will allow the new growth to get established before the coldest weather of the winter sets in. This is often done on a regular schedule of approximately once every four years.

The selective trimming of bushes is accomplished by cutting a third of the stems to the ground. Always remove the older stems, which will stimulate new, vigorous growth and more abundant flowering. If you want to train the growth of a large bush off the ground, trim to the base all but eight to 10 of the tallest, healthiest stems to form a well-shaped "bouquet"-style bush or a "modified tree" with the leaves and blooms in the upper third of the bush. If you have a single trunk oleander tree, all new shoots should be stripped from the base and along the trunk. The tree top should be trimmed and thinned to an umbrella-shaped top to keep it from becoming top-heavy. Only hardy varieties should be chosen for tree forms, as freezing temperatures will take the less hardy to the ground to regrow as a bush.

The branches you trim off can be used for floral arrangements. Place the cut end in boiling water for 20 seconds to reduce the sap flow. Remember that all parts of the oleander are poisonous, so take extra care with the cuttings if there are children in your household.

Edible Wild Plant Video Now Available

Two USDA botanists, Jim Meuninck and Dr. James Duke, have collaborated to produce an easy-to-follow video guide to foraging for natural foodstuffs. From lakes to woods to marshy waterways, the video takes the viewer on a tour for unusual and nutritious wild edibles, with a generous supply of recipes made with foraged food and advice on how to avoid making foraging mistakes with poisonous look-alikes.

The video also looks at wild plants for healthful herbal teas and provides foraging rules for herbal pharmaceuticals. The tape would be a valuable resource for any herbalist or forager, or a great tool for anyone who teaches, lectures, or writes about herbs. A production of Media Methods, the 60-minute video is available for \$19.95, plus \$1.00 postage. Write to: The Seeker Press, P.O. Box 299, Battle Ground, IN 47920.

A Shot to Kill Gypsy Moths?

For areas where aerial or ground spraying is impossible or undesired, scientists have tried injecting systemic insecticides directly into oak trees to discourage gypsy moth caterpillars. Tree sap dispersed the chemicals, acephate and methamidophos, which were injected or implanted just after budburst. During the three-year study at four locations in Maryland and Pennsylvania, no treated tree was seriously defoliated by gypsy moths. Implantation cartridges of powdered acephate to control the gypsy moth have been registered with the Environmental Protection Agency, while injection units of liquid acephate are awaiting EPA approval.

—Insect Chemical Ecology Lab,
Beltsville, MD

Gardener's Dateline

As the winter doldrums turn to spring fever, seminars and lectures to educate us give way to flower shows and garden tours to inspire us for the coming season.

► **January 4-6. Ecological Farming Conference.** Asilomar Conference Center, Monterey, California. Information: Otis Wollan, Committee for Sustainable Agriculture, P.O. Box 1300, Colfax, CA 95713, (916) 346-2777.

► **January 13. Lecture: Principles For Designing Your Own Garden.** U.S. Botanic Garden Conservatory, Washington, D.C. Information: U.S. Botanic Garden Public Programs Office, 245 First St., SW, Washington, DC 20024, (202) 226-4082.

► **January 22. Lecture: Spring Down Under,** by Elizabeth Scholtz. Brooklyn Botanic Garden. Information: BBG, 1000 Washington Ave., Brooklyn, NY 11225, (718) 622-4433.

► **January 22. Lecture: Solving the Problems of Your Existing Garden.** Maymont Foundation, Richmond, Virginia. Information: Cindy Gricus, Maymont Foundation, 1700 Hampton St., Richmond, VA 23220, (804) 358-7166.

► **January 26-27. Xeriscape '89 Conference.** Balboa Park, Casa del Prado, San Diego, California. Information: Jan Tubiolo, Cuyamaca College Botanical Society, 2950 Jamacha Rd., El Cajon, CA 92019-4304, (619) 670-3544.

► **January 29. Professional Landscaping Seminar: Landscape Magic.** Walt Disney World. Information: Seminar Productions, Walt Disney World, Attention: Dept. PR, P.O. Box 10,000, Lake Buena Vista, FL 32830-1000, (407) 828-1500.

► **January 28-April 30. Conservatory Display: Welcome Spring.** Longwood Gardens. Information: Longwood Gardens, P.O. Box 501, Kennett Square, PA 19348-0501, (215) 388-6741.

► **February 3-12. Colorado Garden and Home Show, Denver.** Information: Helen Masterson, 1430 Larimer, Suite 320, Denver, CO 80202, (303) 573-5464.

► **February 9-12. Midwest Flower, Garden, and Outdoor Living Show.** Omaha Civic Auditorium Exhibition Hall, 1804 Capitol Avenue, Omaha, Nebraska. Information: Jane Booth,

Lutheran Medical Center, P.O. Box 3434, Omaha, NE 68103, (402) 536-6994.

► **February 12-19. Atlanta Flower Show.** Atlanta Apparel Mart, 250 Spring Street, Atlanta, Georgia. Information: Elizabeth McBride, Atlanta Market Center, 240 Peachtree St., NW, Suite 2200, Atlanta, GA 30043, (404) 658-0770.

► **February 17-20. Northwest Flower and Garden Show.** Washington State Convention and Trade Center, Seattle, Washington. Information: Nancy Hewitt, 5901 Beach Dr., SW, Seattle, WA 98136, (206) 937-3673.

► **February 18-19. Camellia Show.** Atlanta Botanical Garden. Information: Laurie Libman, Atlanta Market Center, 240 Peachtree St., NW, Suite 2200, Atlanta, GA 30043, (404) 688-8994.

► **February 22-26. Washington Flower and Garden Show, Washington, D.C.** Information: TJS Productions, 7668-B Fullerton Road, Springfield, VA 22153, (703) 569-7141.

► **February 23-26. Dogwood Arts Festival House and Garden Fair.** Knoxville Convention Center, Knoxville, Tennessee. Information: Dogwood Arts Festival, 203 Fort Hill Building, Knoxville, TN 37915, (615) 637-4561.

► **February 24-26. The Magnolia Society Annual Convention.** San Francisco, California. Information: The Magnolia Society, 907 South Chestnut St., Hammond, LA 70403-5102, (914) 941-8886.

► **February 24-26. International Symposium on Bulbous and Cormous Plants.** Irvine, California. Information: Harold Koopowitz, ISBC, UCI Arboretum, University of California, Irvine, CA 92717.

► **February 25-March 1. International Society of Arborists Annual Meeting.** Opryland Hotel, Nashville, Tennessee. Information: Tom Dedrick, Davey Tree Co., Box 34087, Memphis, TN 38134.

► **March 4-12. New York Flower Show.** Pier 92 at 52nd Street and 12th Avenue, New York, New York. Information: The Horticultural Society of New York, 128 West 58th St., New York, NY 10019, (212) 757-0915.

► **March 4-12. New England Flower Show.** Bayside Exposition Center, 200 Mount Vernon Street, Boston, Massachusetts. Information: Massachusetts Horticultural Society, 300 Massachusetts Ave., Boston, MA 02115, (617) 536-9280.

► **March 5-12. Philadelphia Flower Show.** Philadelphia Civic Center, 34th Street and Civic Center Boulevard, Philadelphia, Pennsylvania. Information: The Pennsylvania Horticultural Society, 325 Walnut St., Philadelphia, PA 19106, (215) 625-8250.

Clip & Mail

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What's New For 1989

If you're looking for some variety to spice up your garden, try one or two—or more—of the new cultivars being offered this year:

From Burpee:

► *Impatiens* 'Dazzler'. *Impatiens* remain the most popular flowers for shaded areas. 'Dazzler' can take a little more sun than the older varieties, making it extremely versatile for shade and morning sun locations in the garden. Perfect for mass plantings, it provides reliable uniformity.

From Park Seed:

► Bush bean 'EZ Pick'. Prepare for an easy harvest with this bean, which easily pulls loose, leaving the stem on the plant. A space saver, 'EZ Pick' has a bush habit that keeps beans cleaner because they are held off the ground.

► Cucumber 'County Fair '87'. This is an exceptionally productive cucumber, bearing two fruits per node with improved seedless characteristics. 'County Fair' is a bitter-free cultivar that does not produce the compound cucurbitocin that attracts pests. This cultivar also resists cucumber mosaic, downy and powdery mildew, fusarium, anthracnose, and angular leaf spot.

► *Helianthus annuus* 'Sunspot'. Don't look for eight to 10-foot-tall plants with this sunflower; its eight- to 10-inch golden yellow flowers with golden brown centers appear on short plants about two feet tall. The flowers come in 60 days and provide color for weeks; the mature heads yield sunflower seeds that attract birds and provide a nutritious treat for the gardener.

► *Tagetes* 'Discovery'. This plant's large, yellow blooms and stay-dwarf habit define a new class of marigold. The plants bloom in 60 days, when they are eight inches tall, and stay a foot tall or less all summer, even when rain and shade or rich soil stretch other marigolds. The blooms are fully double and the waxy, heavy-textured petals grow so tightly that the blooms shed water droplets.

From Wayside Gardens:

► *Aquilegia* 'Music Series'. These neat, well-branched, 12-inch plants bear large, long-spurred, intensely colored blooms on 19- to 24-inch stems, providing an outstanding display of concentrated color.

► *Cortaderia selloana* 'Pumila'. This dwarf pampas grass is well-adapted to city gardens because of its resistance to pollution. The 18- to 24-inch plumes appear the first year after planting, usually with five to six flower spikes per five- to six-foot stem. Dwarf pampas grass has proved hardy as far north as Long Island, New York. The



Aquilegia 'Music Series'



Bush bean 'EZ Pick'



Hosta tokudama 'Aureo Nebulosa'



Helianthus annuus 'Sunspot'

plant, which is drought- and heat-resistant, grows well in full sun and in any well-drained soil.

► *Hosta tokudama* 'Aureo Nebulosa'. Four-inch leaves have centers suffused with wide, irregular margins in shades of blue and green, a variegation that differs depending on the maturity and location of the plant. The foliage is round, cupped,

heavily puckered, and of good substance. Dense racemes of white flowers appear in the early summer.

► *Iris kaempferi* 'Akinishiki'. This cultivar has large, single, pendulous, full petals, distinct white veining, and a light yellow throat. The edge of the eight- to nine-inch flowers is white and violet. The standards are short and upright.

New Roses-of-Sharon

Three new roses-of-Sharon, all bearing the names of Greek goddesses, raise the flowering shrub above its weedy place among landscape plants. All three new *Hibiscus syriacus* cultivars are nearly sterile and produce no seed, unlike other roses-of-Sharon that drop troublesome seed. 'Aphrodite' bears dark pink flowers with red "hearts," or centers, from June through September. The others are 'Diana', with large, pure white flowers, and 'Helene', with white flowers that have bright red centers. They join 'Minerva', with lavender flowers, which was introduced last year. All four plants produce bell-shaped flowers up to one-third larger than standard types, and they bloom longer. They should be in retail markets within two years.

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

AHS

1989 Seed Catalog



How to Use This Catalog



New Year's resolutions for our members are likely to include vows to rip the bindweed from the corner behind the shed, to nip leaf spot in the bud by being tidier, or to keep a garden diary so we'll remember which cultivars of salvia did well and which to avoid like the plague. Alas, the fulfillment of some of these brave promises will have to wait. But if your list includes stretching your skill with seeds, you can start today by taking a trek through our annual Seed Program catalog.

This year, AHS members and friends have outdone themselves in the quantity and variety of their contributions. What's your pleasure?

- You don't know the first thing about flats and vermiculite and hardening off, but you want to have a whole bedful of marigolds that cost you practically nothing? Follow our basic directions carefully, and an enviable blanket of orange and yellow annuals is practically guaranteed. (Cosmos is another good annual for the neophyte. Some good perennial choices for the seed novice include *Dianthus barbatus* and *Gaillardia aristata*.)

- You've been raising prize-winning perennials for years from local nursery stock, but want to experience the heady feeling of raising one from a pup? We have more than 30 selections, from *Acaena* to *Watsonia*.

- You've ascended to the stratosphere of gardening and invested in a greenhouse; no more garden varieties for you? This year's tropical selections will let you astound friends and neighbors with a passion flower, a bird of paradise, or on the chance that you live in southern Florida (or your greenhouse is 12 stories high), your own kapok tree.

Wild about wildflowers? Hysterical about herbs? Think grasses are the greatest? Our donors have covered those bases, too. The catalog also includes 28 different trees and shrubs, from the three-foot-tall *Athanasia parviflora* from South Africa to the 70-foot honey locust, and a veritable cornucopia of seeds for the vegetable grower.

How to order

Don't just sit there and dream while fellow AHSers get the jump on you. Although we have a small mountain of many of the species listed here, in some cases the donors—other members, seed companies and botanical gardens—were able to provide only a small quantity. To increase the chances that you'll get the seed you've resolved to succeed with, fill out your order form and mail it now. Whenever possible, we will send you your first-choice selections. But we ask that you list alternate selections that we can send in case any of your first choices are depleted. Our staff and volunteers who fill your order will not choose substitutions for you; only you know what is best for your own garden.

Once you've decided what you want to order, fill out the order form on page 12.

After sending us your order, it is important that you keep this catalog: you will need it to identify the seed you receive. All the seed packets distributed through the Society's annual Seed Program are marked with only the master list numbers that appear in the catalog.

There is no cut-off date for orders this year. But the longer you delay in placing your order, the less likely it is that you will receive all your first choices and have them up, ready to adorn your landscape by spring.

As you complete the order form, we hope you will consider making a donation to help defray the cost of the Seed Program by including a voluntary contribution. This year, we are suggesting a minimum of \$2 if you are ordering 10 packets of seed, and \$3 if you are ordering 17 packets. By donating even more, you can help AHS expand and improve its Seed Program. All contributions to the American Horticultural Society are tax deductible.

Supplementary list

Seed received too late to include in the catalog, but which we nevertheless want to make available to members, has been listed in a supplementary seed list that is available upon request. The supplementary list also includes seed we have in very limited quantities, so that we may be able to fill only a few requests. Growing plants from seed is always an adventure; if you

feel truly daring, the supplemental list also includes a group of "mystery" seeds about which we could find little information other than the names. If you would like to receive the supplementary list, please request it by checking the appropriate box in the seed order form.

Keep a diary

On page 8, you will find a master record-keeping form. You may wish to make a copy of the form for each species of seed that you order, so that you can keep a record of its germination and growth. At first glance, to those who've never done it, keeping records or a diary may look like yet another among too many gardening chores. But diary devotees testify that such a record enhances the joy of gardening in myriad ways, offering reminders that it's time to fertilize or be prepared for a swarm of Japanese beetles; allowing them to learn from last year's underwatering, overexposing or disastrous selection; and giving them an avenue for sharing those lessons with fellow gardeners.

If you are willing to share your experiences, we encourage you to send us information about your seed germination and plant growing experiences that we can then use to advise others. If you know of any special techniques, or can provide germination or cultural information, we would appreciate hearing from you. Send your reports to:

Performance Data 1989
American Horticultural Society
P.O. Box 0105
Mount Vernon, VA 22121

Seed Program 1990

We're hard pressed to name the number one reward of gardening, but ranking near the top has to be the feeling you get when you've raised a plant in such abundance that you have enough seed, cuttings or divisions to share with your friends and neighbors. Start thinking now about sharing your 1989 bounty with the American Horticultural Society's nationwide community of gardeners. Although much of the seed in our catalog is donated by seed companies and botanical gardens, we also depend heavily on donations from members. We would like to see more Society members involved in both the give and take of this program. Particularly if you have any unusual or rare plants in your garden, we hope you will collect the seed and send it to us for the 1990 seed offerings so that it can be shared with American Horticultural Society members.

For information on the 1990 seed program, write to:

Seeds 1990
American Horticultural Society
P.O. Box 0105
Mount Vernon, VA 22121

General Germination Instructions

The successful germination of seed requires three conditions. First, the seed must be viable; second, the seed must not be dormant; and third, the appropriate environmental conditions must be provided.

Seed viability depends on a number of factors, including growing conditions and storage conditions. Growing conditions are often beyond your control, but you can take simple steps to assure storage conditions that will maintain viability for a reasonable length of time: seeds should be stored in reasonably airtight containers and kept in a place where neither temperature nor humidity varies much.

Some seeds will need your coaxing to overcome dormancy. The procedures usually used to do this are scarification and stratification—sometimes both. These processes will be explained later in these directions. As you read the catalog, you will find at the end of each seed description a code indicating whether germination will require scarification and/or stratification. Those codes are explained by a chart that will appear several times throughout the catalog.

There are four environmental conditions that need to be controlled:

- **Water.** Once a seed takes up water, it must not be allowed to dry out or the seed is lost.

- **Temperature.** Most seed will germinate readily at about 70° F. It is best if the temperature is provided by bottom heat from a heating cable (a small heating cable is relatively inexpensive). There is some seed that may germinate best at a lower temperature—about 55° or 60° F—while other seed requires a warmer temperature of about 80° F. These will also be indicated by our chart. Never, however, expose any seed to excessively hot or cold temperatures (below 50° or above 85° F) after the seed has imbibed water.

Maintaining the optimum temperature will help assure that germination occurs as rapidly as possible; unnecessary delay of germination increases the likelihood of disease that will kill young seedlings or prevent their germination altogether.

- **A well-aerated growing medium.** For indoor planting, use a commercial potting mix composed of sphagnum peat, perlite, and/or vermiculite. Good results can also be obtained for many seed with milled sphagnum, or perlite, or vermiculite used alone. Do not use ordinary garden soil to germinate seed indoors; no matter how good its quality, it is very unlikely that it will provide adequate aeration when placed in a seed flat. Also, it is highly likely that garden soil is contaminated with organisms that can cause damage to seeds and seedlings. Whatever medium is chosen, it should be thoroughly moistened before being placed in the germinating flats. Make sure the flats have drainage holes.



Laura E. Coit

- **The appropriate light level.** Some seed requires light for germination and others are inhibited by light. These needs are also indicated in our chart.

Sowing the seed

The seed of many plants, particularly annuals, can be sown safely outdoors where the plant is to grow once the date of the last frost in your area has passed. But with all other plants, or to get an early start with these, you will want to sow seed indoors in seed flats. Those that will eventually be grown outdoors should be started about six to eight weeks before the last frost date.

It is important that the germination medium be disease-free at the outset. The best way to destroy organisms that can prevent germination is to pasteurize the medium. To do this, place a quantity of the moist (but not wet) medium in a tray to a depth of not more than two inches and heat it in an oven for 30 minutes at a temperature of 180° F. As an added precaution, the seed flat may also be drenched with a fungicide formulated to destroy damping-off organisms. This should be done 24 hours prior to sowing the seed.

After the moistened germination medium is put into the seed flat, mark the rows where the seed is to be sown. Most seed should be covered about one-and-a-half-to-two times its diameter. However, if the seed you are sowing is very small, there is no need to cover it with

the medium; it is sufficient to press it lightly so that it makes contact with the soil. It will help to disperse such seed evenly in the row if you first mix the seed with about three or four times its volume of fine horticultural vermiculite (grade 2).

Avoid sowing seed with different germination times in the same flat. Otherwise, you may find it impossible to transplant the earlier seedlings without disturbing those that germinate later. For the same reason, you should avoid planting seed too close together. Close spacing also encourages disease.

Be sure to label the seed flats with the date and name of the seed sown. It's frustrating to watch something sprout and wonder "What's up?" And you'll find that gathering information on the performance of your plants enhances the fun of gardening.

After sowing, water thoroughly with a fine mist spray until water begins to drain out the bottom of the seed flat. This ensures thorough wetting. Glass works well for covering the tray: it's inexpensive, lets you see when seed has germinated, and a gentle tap will serve to "re-water" the seed. But plastic or even damp newspaper (for those seeds that do not require light) will serve the purpose. Put the flat on a heating cable, or in any location of suitable temperature. *Do not place the flat in the sun or under any strong light source, especially if you have covered it with glass.* Excessive heat build-up will kill the embryos.

As soon as the young seedlings break the soil surface, remove the glass pane and place the seed flat in indirect light or in a well-lit location until ready for transplanting. If you are depending on bulbs to provide light, use fluorescent light.

About one week after germination you may begin fertilizing the seedlings with one-quarter-strength soluble fertilizer. You may apply it with every watering. When the seedlings are three weeks old, the fertilizer can be increased to one-half strength.

Do not allow seedlings to become excessively dry, but don't overwater either. The seedlings must be kept reasonably moist without being soaked. Too much water encourages disease; too little water causes poor growth.

Transplanting

Transplant the seedlings to individual pots as soon as two true leaves develop. The smaller the seedlings are at transplanting, the better they tolerate the shock of transplanting. If you allow the seedlings to become too large before transplanting this may contribute to the failure of the transplant.

Immediately before transplanting, thoroughly water the seed flat and let it drain for about an hour. This will help you to remove the seedlings from the flat more easily and will aid in reducing root injury.

An ordinary kitchen fork makes a good

transplanting tool. The tines of the fork will lift the seedling easily from the flat without contributing to excessive root damage.

After transplanting, water the transplant thoroughly and place it in a shaded location for about 24 hours. Following this, the transplants may be placed in normal growing conditions.

If the transplants are to grow outdoors they must first be hardened to the new environment. Hardening involves a gradual adjustment to outdoor temperature and light and is accomplished over a period of about three to four days. Beginning a week or 10 days before the hardening process is to be started, gradually reduce watering (but not to the point of allowing the plants to wilt) and stop fertilizing. Then begin the hardening process by moving the young transplants outdoors where they will not be exposed to direct sunlight. On the first day of hardening, the plants should be left outside for about four hours during the morning. Over

the next two or three days the plants are left out for longer periods, gradually introducing them to more light until hardening is completed. After this treatment the transplants should be sufficiently acclimated so that they can adapt to permanent placement in the garden.

The seed of trees and shrubs can be handled the same as any other seed, following all the procedures for sowing the seed as outlined, but the young tree or shrub seedlings should be planted outdoors in a protected location for a year or two prior to setting them in their permanent location.

Overcoming dormancy

Cold stratification. Seeds that require cold stratification before they are able to germinate should be sealed in a plastic bag with a small amount of moist (but not wet) sphagnum moss or peat moss. Tie the bag closed and place in

a refrigerator at 38 to 40° F for the appropriate time, which may be from one to four months. It is important that the sphagnum or peat not be too wet; otherwise the seed may rot.

Warm stratification. Some seed requires exposure to a period of warm temperatures before the cold stratification treatment begins. The seed is treated exactly as for cold stratification except that it is stored at a warm temperature of 70 to 80° F for some period of time.

Scarification. Some seed will not germinate because of a hard seed coat and softening or breaking the seed coat is necessary to effect germination. A hard seed coat may be rubbed with sandpaper or a small file to alter it enough so that it can take up water. For some seed, a hot water soak can accomplish this. Soak the seed in five times its volume of hot water (180 to 212° F) for 24 hours. The hot water is poured over the seed and allowed to cool.

Annuals

1. *Calendula officinalis* 'Pacific Beauty' mix. Pot marigold. Height: 20 inches. Flowers: 3 inches; orange, yellow, apricot. Good cut flower. A,B,L

2. *Chenopodium botrys*. Ambrosia. Height: 2 feet. Valued for its strongly scented leaves

rather than its flowers, which are not outstanding. A,B,L

3. *Clarkia amoena*. Satin flower. Height: 3 feet. A spreading plant that prefers light soil. Flowers are pink to lavender with bright red centers. A,B,L

4. *Cleome hasslerana*. Spider flower. Height: 4 to 6 feet. Six-inch flower heads in rose, white, lavender range, mid-summer to autumn. Reseeds. A,B,L

5. *Cosmos sulphureus* 'Diablo'. Height: 1½ to 3 feet. Flowers are deep orange, semi-double, and bloom summer to fall. Easy to grow. A,B,L

6. *Datura innoxia*. Angel's trumpet. Height: 3 feet. Flowers are white, tinged with pink or lilac and 8 to 10 inches. Flowers open at night and close by noon the next day. A,L

7. *Delphinium* spp. Larkspur. Height: 3 feet. Flowers are dark purple, blue, or white in early summer. A,B,L

8. *Erodium moschatum*. Musk clover. Height: 18 inches. A member of the geranium family, it has small, rose-purple flowers with five petals. Native to Europe, naturalized in North and South America. B,L

9. *Gazania rigens*. Treasure flower. Perennial grown as an annual. Height: 6 to 18 inches. Daisylike flowers are 2 to 3 inches in yellow, orange, red, pink with dark ring at base, blooming early summer to frost. Can be used as houseplant in the winter. I,J

10. *Gypsophila muralis*. Cushion gypsophila. Height: 1 foot. Small pink flowers, mid-June to October. Plant is profusely branched, needs well-drained, alkaline soil. A,B,L

11. *Helichrysum* 'Bright Bikini' mix. Strawflower. Height: 1 foot. Flowers are red, yellow, pink, white, and bloom in mid through late summer. Good as cut flowers or in dried arrangements. A,B,H,L

12. *Nigella damascena*. Love-in-a-mist. Height: 18 to 24 inches. It gets its common name from the way the solitary blue or white flowers appear to nestle in the misty, fern-like foliage. The balloon-shaped seed pods can be used in dried arrangements. Reseeds. Difficult to transplant. B,L

13. *Orthocarpus purpurascens*. Owl's clover. Height: 15 inches. A member of the snapdragon family with hairy, purplish stems bearing spikes of crimson or purple flowers that are tipped with white or yellow and purple markings. Native to southern Arizona and southern California. L

14. *Perilla frutescens*. Beefsteak plant. Height: 18 inches. Grown mainly for the handsome purple foliage resembling that of coleus. Flowers are white to red. A,L

15. *Scabiosa atropurpurea* 'Giant Imperial.' Pincushion flower. Height: 3 feet. Pincushion-shaped 3-inch flowers in blue, white, rose, pink, crimson, lavender. A,B,L

16. *Tagetes* 'Cabaret' mix. Marigold. Height: 14 inches. A,L

17. *Tagetes* 'Petite Choice' mix. Marigold. Dwarf plant; flowers orange and yellow. A,L

18. *Xeranthemum annuum*. Immortelle. Height: 2 to 3 feet. Flowers: ½ inches; white, purple, violet, rose. Useful in arrangements both fresh-cut or dried as everlasting. A,B,L

Our Members Tell Us

"I'm still growing 'Bright Eyes' geraniums (about 50 a year) from cuttings from seeds of many years ago!"

Mrs. Harold Pilkington
Monument Beach, Massachusetts

"This is a unique feature about AHS . . . [that] I have used to expand my horticultural horizons. Past successes that have worked particularly well for me include the Chinese elms now shading the lawn, the Japanese tree lilacs in bloom for the second year now and reaching to the top of our porch, my golden barrel cactus and azalea schlippenbacchii, and the blue Indian corn we use for tortillas."

Jane A. Lawrence
Muncy, Pennsylvania

"I am pleased with almost everything in the program. Have some lovely plants as a result. Some seeds have not been fertile—a chance one takes."

Sabina Parks
Washington, D.C.

Perennials

19. *Acaena novae-zelandiae*. New Zealand bur. Ground cover. Trailing plant. Purplish flower heads bloom in the summer. Good for rock garden. Needs perfect drainage, partial shade, winter protection in colder areas. Zone 7. A,B,L

20. *Achillea taygetea* 'Moonshine'. Yarrow. Height: 2 feet. Flowers bright yellow; blooms June through August. Foliage is feathery, silver gray. Zone 5. A,B,L

21. *Alcea rosea* 'Chaters's' mix. Hollyhock. Height: 6 to 8 feet. Includes scarlet, rose, pink, and deep yellow flowers. Zone 5. A,B,J,L

22. *Anemone pulsatilla*. Pasque flower. Height: 10 to 12 inches. Early to mid-spring flowers are blue to red-purple, 2½ inches across. Zone 5. L (germinates in 5 to 6 weeks)

23. *Anthemis tinctoria*. Golden marguerite. Height: 2 to 3 feet. Flowers: 2 inches, golden yellow, free flowering in the summer. Perennial border, cut flower. Zone 4. L

24. *Aquilegia longissima* 'Maxistar'. Columbine. Height: 2 feet. Spurred flowers, which bloom late spring to early summer, are primrose yellow and very large. Zone 4. Ea, L (takes 1 to 3 months to germinate; reducing night temperature is beneficial to germination)

25. *Aquilegia vulgaris*. Granny's bonnets. Height: 3 feet. Flowers are blue, purple, white, May to July. Zone 4. Ea (germination takes four weeks)

26. *Asclepias curassavica*. Bloodflower. Height: 3 feet. Flowers scarlet, tinted orange, July to September. Zone 7. I,L

27. *Baptisia australis*. Blue false indigo. Height: 3 to 5 feet. Flowers are blue, pea-like, and bloom in late spring. Foliage is blue-green. Zone 3. A,B,F,L

28. *Begonia grandis*. Hardy begonia. Height: 2 feet. Pink flowers. Plant in shaded, protected location. Fine seed, do not cover. Zone 6. A,L

29. *Belamcanda chinensis*. Blackberry lily. Height: 2 to 4 feet. Tuberous rooted. Flowers: 1½ to 2 inches; orange, spotted red, early summer. Mulch heavily in cold areas. Zone 5. A,B,L

30. *Camassia quamash*. Common camass. Height: 2 to 3 feet. Delicate, spring-flowering bulb; blue to white flowers. Grasslike leaves; bulb is edible. Native to California. Zone 5. A,L

31. *Campanula persicifolia*. Peach-leaved bellflower. Height: 2 to 3 feet. Blue flowers

bloom in late spring to early summer. Tolerates partial shade. Zone 4. A,B,L

32. *Campsis radicans*. Trumpet vine. Flowers are bright orange, trumpet-shaped and 3 inches long. Blooms in late summer. Zone 5. Eb (germinates in 30 days)

33. *Canna indica* 'Rubra'. Indian shot. Height: 4 to 7 feet. Leaves grow to 1½ feet long, 8 inches wide. Bright red flowers, orange lip. Zone 9. F,K

34. *Chrysanthemum coccineum*. Painted daisy. Height: 2 feet. Flowers: 3 inches; red, pink, white with yellow center. Blooms in July to August. Tends to be invasive. Zone 2. A,B,H,L

35. *Chrysanthemum parthenium*. Feverfew. Height: 1 to 3 feet. Daisy-like white flowers with yellow centers, ¾ inch. Blooms profusely in summer and tolerates partial shade. Foliage is strongly scented. Zone 4. L

36. *Chrysanthemum* × *superbum*. Shasta daisy. Height: 3 feet. Flowers are white with yellow centers. June through August. Zone 4. A,B,H,L

37. *Dianthus barbatus*. Sweet William. Height: 2 feet. Flowers are red, white, pink, violet. Prefers well-drained, alkaline soil. Zone 6. B,L

38. *Dictamnus albus* var. *rubrum*. Gas plant. Height: 2 to 3 feet. June flowers are rosy-purple. Plant, especially the seed, is poisonous. Name comes from the fact that a lighted match held beneath a flower cluster ignites gas to produce a blue flame. Excellent for perennial border. Zone 4. Eb,J (germinates in 30 to 40 days)

39. *Eucomis comosa*. Pineapple flower. A bulbous plant. Height: 2 feet. Greenish, star-shaped flowers. Native to South Africa. North of Zone 7 it is usually grown in the greenhouse, but bulbs can be planted outdoors in May and dug up in fall. South of Zone 7, plant bulbs in the fall for summer blooms. Zone 7. A,L

40. *Fragaria vesca*. European strawberry. Height: 8 to 12 inches. Used primarily as a ground cover, is everbearing with large white flowers and edible red fruit from June to late fall. Zone 5 to 6. A,L

41. *Gaillardia aristata*. Common blanket-flower. Height: 2 to 3 feet. Flowers are yellow, daisylike, and bloom most of the summer. Good for cut flowers. Thrives in dry soils, hot temperatures. Zone 4. A,B,I,L (germinates in 3 weeks)

42. *Hosta ventricosa*. Blue plantain lily. Grown primarily for its dark green foliage;

flowers are dark violet. Shade. Zone 3. A,B,L

43. *Iris*. Species mix. Erratic germination. Zone 4. M (sow outdoors in fall)

44. *Leontopodium alpinum*. Edelweiss. Height: 6 to 12 inches. Foliage is silvery white due to short woolly hairs. Flowers are yellow over silvery-woolly bracts and bloom in mid-summer. Zone 5. A,B,Ea,H,J

45. *Lilium canadense*. Canada lily. Height: 2 to 5 feet. Flowers are yellow to red, bloom in July. Zone 3. A,B,L

46. *Linum perenne*. Flax. Height: 2 feet. Sky blue flowers bloom May to August. Zone 4. B,L (germinates in about 25 days)

The letters in the following table provide germination information and requirements. For some seed, more than one germination technique may be used. For example, A,B indicates that the seed may be sown indoors or outdoors. Also, some seed requires more than one treatment before germination can occur. Db, Eb indicates that a three-month warm stratification treatment must precede a 60-day cold stratification treatment.

- A** May be sown indoors in flats.
- B** May be sown outdoors where they are to grow.
- C** Sow indoors into peat pots to minimize transplant shock.
- Da** Warm stratification of 2 months.
- Db** Warm stratification of 3 months.
- Dc** Warm stratification of 4 months.
- Dd** Warm stratification of 5 months.
- De** Warm stratification of 6 months.
- Ea** Cold stratification of 30 days.
- Eb** Cold stratification of 60 days.
- Ec** Cold stratification of 90 days.
- Ed** Cold stratification of 120 days.
- F** Scarification
- G** Hot-water soak
- H** Light recommended for germination.
- I** Dark recommended for germination.
- J** Cool temperature required for germination (55° to 60° F)
- K** Warm temperature required for germination (80° F)
- L** Easy to germinate.
- M** Difficult to germinate.
- N** No reliable germination information.

47. *Lunaria annua*. Money plant. Biennial that will reseed. Height: 3 feet. Foliage in the first year; flowers and fruit in the second year. Flowers are purple or white and fragrant. Fruit is silvery, papery, and coin-shaped. Useful for dried arrangements. B,L

48. *Mimulus longiflorus*. Monkey flower. Height: 3 feet. Orange-yellow flowers that some say look like a monkey's face. Zone 9. A,B,L

49. *Papaver nudicaule*. Iceland poppy. Height: 1 foot. Flowers are cup-shaped, 1 to 4 inches, yellow, orange, red, rose, apricot, white, spring through summer. Zone 2. A,B,J,L (difficult to transplant)

50. *Potentilla recta warrensii*. Sulphur cinquefoil. Height: 1½ to 2 feet. Erect plants with buttercup-yellow, summer-blooming flowers up to 1 inch across. Zone 3. A,B,L

51. *Salvia stenophyllum*. Height: 2 feet. A tender perennial. Leaves are 2½ inches long, sticky, and aromatic. Useful for sachets. Flowers are 1 inch long and a light blue. A pretty ornamental. L

52. *Watsonia* spp. Bugle lily. Height: 3 to 4 feet. Member of iris family but culture like gladiolus. Flowers are rosy-red. From South Africa. Summer-blooming. Zone 9. A,L (germination takes 20 to 40 days)

Wildflowers

Annuals

53. *Centaurea cyanus*. Bachelor's button. Height: 2½ feet. Blue flowers, June to September. Needs well-drained soil. Tolerates light shade. B,L

54. *Clarkia unguiculata*. Height: 3 feet. Summer flowers are rosy red, 2½ inches wide. Native to California. Reseeds. B,L

55. *Coreopsis tinctoria*. Height: 3 feet. Flowers: daisylike, yellow and maroon, summer to fall. Reseeds. B,L

56. *Cynoglossum virginicum*. Hound's tongue. Height: 30 inches. Flowers: blue, spring and early summer. Winged stalks. A perennial grown as an annual. B,L

57. *Dimorphotheca pluvialis*. Rain cape marigold. Height: 16 inches. Flowers have yellow centers, with white petals that are purple underneath, summer. Reseeds. Native to South Africa, naturalized in southwestern United States. Low water requirement. G,L

and red, pink, white or purple. Spring and summer. Reseeds. Low water requirement. B,L

63. *Linum grandiflorum* var. *rubrum*. Scarlet flax. Height: 12 to 18 inches. Flowers: red, summer. Drought resistant. Tolerates light shade. B,L

64. *Lupinus densiflorus* var. *aureus* (mixed). Lupine. Height: 2½ feet. Flowers: purple, rose, yellow, cream, spring and summer. Native to California. Reseeds. B,L

65. *Lupinus densiflorus* var. *aureus* (yellow). A yellow flowering form of the above.

66. *Matricaria recutita*. German chamomile. Height: 2 feet. White, daisylike flowers are used to make tea. B,L

67. *Phacelia campanularia*. California bluebells. Height: 8 to 20 inches. Flowers: blue, spring to summer. Drought tolerant. L

68. *Phacelia tanacetifolia*. Fiddleneck. Height: 3 feet. Flowers are fringed and blue, lavender. California to Arizona in U.S.; grown in some countries for a honey plant. B,L

69. *Silene armeria*. Catchfly. Height: 1 to 2 feet. Flowers: rose-pink, verbena-like, mid-to late-summer. B,L

70. *Silene pendula*. Drooping catchfly. Height: 10 inches. Like the *Silene armeria*, useful in the rock garden. B,L

71. *Silybum marianum*. Blessed milk thistle. Height: 4 feet. A biennial with thistlelike, rose-purple flowers. B,L

Save this catalog!

Seed packets are marked by catalog number only, so it will be your only means of identifying the seeds you have selected.

58. *Gaillardia pulchella*. Indian blanket flower. Height: 1 to 2 feet. Flowers are 2 inches wide, daisylike with yellow centers and red to yellow petals. Summer to frost. Must have well-drained soil. B,L

59. *Gilia leptantha* var. *purpussi*. Height: 3 feet. Flowers: blue, violet, white, May to August. Native to California. B,L

60. *Helianthus* spp. Wild sunflower. Height: 3 to 4 feet. Flowers: yellow, July and August. B,L

61. *Lasthenia chrysostoma*. Height: 16 inches. One-inch, daisylike yellow flowers. B,L

62. *Linaria maroccana*. Toadflax. Height: 18 to 24 inches. Flowers: bicolor of yellow,

4 feet. Flowers: yellow and very floriferous. Zone 5. G

75. *Chrysopsis mariana*. Maryland golden aster. Height: 2 to 3 feet. Daisylike yellow flowers bloom August to October. Zone 4. L

76. *Dipsacus fullonum*. Teasel. Height: 6 feet. Flowers: pale lavender. Extensively naturalized in the United States. Used in dried arrangements. Zone 3. B,L

Unless otherwise stated, it should be assumed that all plants grown from the seed in this catalog do best in full sun. Also, the "L" symbol, which indicates that the seed is easy to germinate, does not necessarily mean that it is also easy to grow once it has germinated. If you are totally unfamiliar with a particular species, you may want to consult a horticultural reference book.

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F Scarification

G Hot-water soak

H Light recommended for germination.

I Dark recommended for germination.

J Cool temperature required for germination (55° to 60° F)

K Warm temperature required for germination (80° F)

L Easy to germinate.

M Difficult to germinate.

N No reliable germination information.

Perennials

72. *Anemone cylindrica*. Long-headed anemone. Height: 18 to 30 inches. Flowers are buttercup shaped, about ¾ inch wide and greenish white to cream in color. Zone 5 to 9. A,B,L

73. *Aquilegia canadensis*. Wild columbine. Flowers are yellow-red, spring. Prefers rich, moist, well-drained soil, shade. Zone 3. A,B,Ea,H,L

74. *Cassia hebecarpa*. Wild senna. Height:

Grasses

Annuals

77. *Dyssodia acerosa*. A mosslike plant with threadlike, half-inch-long leaves. Height: 4 to 10 inches. Flowers are daisylike, lemon-yellow in color. Native in Arizona and California to Central Mexico. N

78. *Eryngium planum*. Sea holly. Height: 3 feet. Heart-shaped leaves. Blue flowers. Does well in poor, dry soil. Zone 5. B,L

79. *Eupatorium coelestinum*. Mist flower. Height: 1 to 2 feet. Purple-blue flowers bloom midsummer to frost. Tends to be invasive, tolerates light shade. Zone 5. L

80. *Eupatorium maculatum*. Joe-Pye weed. Height: 6 to 10 feet. Purple flowers. Good for marshy land. Zone 3. B,L

81. *Lupinus perennis*. Wild lupine. Height: 1 to 2 feet. Blue flowers bloom May to July. Seed poisonous. Zone 4. B,L

82. *Lythrum salicaria*. Purple loosestrife. Height: 3 feet. Red-purple flowers bloom June to September. Found in marshes and wet meadows. Striking in masses but very invasive. Zone 3. B,L

83. *Malva moschata*. Musk mallow. Height: 3 to 4 feet. Red-purple flowers bloom June to July. Tends to be invasive. Zone 3. B,L

84. *Polemonium caeruleum*. Jacob's ladder. Height: 1½ to 3 feet. One-inch blue flowers bloom May to July. Zone 3. B,L

85. *Polygonatum biflorum*. Small Solomon's seal. Height: 2 to 3 feet. Yellow-green flowers in late spring. Fall fruit is blue-black. Prefers cool, moist soil, and shade. Zone 4. B,L

86. *Rhexia virginica*. Meadow beauty. Height: 9 to 15 inches. Purple flowers, 1½ inches, bloom July to September. Bog plant that grows well in poorly drained soils. Zone 3. A,B,L

87. *Rudbeckia triloba*. Brown-eyed Susan. Height: 5 feet. Flower petals are deep yellow to orange; centers are brown to black-purple. Biennial. L

88. *Sanguinaria canadensis*. Bloodroot. Height: 3 to 6 inches. White flowers from March to May. Prefers rich, slightly acid soil. Good rock garden plant. Reseeds. Name comes from the red sap. Zone 3. B,L

89. *Smilacina racemosa*. False Solomon's seal. Height: 2 to 3 feet. White flowers in spring, red berries in summer. Needs shade. Zone 4. B (sow in fall),M

90. *Sphaeralcea ambigua*. Desert hollyhock. Height: 2 to 3 feet. Flowers: red to pink. Best for warm, dry regions. Good rock garden plant. Zone 7. A,B,L

91. *Thermopsis caroliniana*. False lupine. Height: 5 feet. Flowers: yellow, pea-like, midsummer. Zone 7. B,L

92. *Agrostis nebulosa*. Cloudgrass. Height: 12 to 18 inches. Delicate and graceful. Cut for dried arrangements. Native to Spain. L

93. *Coix lacryma-jobi*. Job's tears. Height: 2 to 6 feet. Leaves 2 feet long, 1½ inches wide. Produces hard, white-gray, tear-shaped fruit that are used as beads. A perennial in the South. A,B,L

94. *Cymbopogon exaltatus*. Scented lemon grass. Height: 1 to 7 feet. Very narrow, lemon-scented leaves that end in long, threadlike tips. Native to Australia. N

Save this catalog!

95. *Lagurus ovatus*. Hare's tail grass. Height: 1 foot. Flower heads are woolly, resembling a rabbit's tail. A,B,L

96. *Rhynchelytrum repens*. Natal grass. Annual or short-lived perennial. Leaves are ¼ inch wide and stems are 3 to 4 feet long. Panicle is 6 inches long and is rosy-purple, fading to

pink. Silver at maturity. Native to tropical Africa. L

97. *Setaria italica*. Green foxtail. Height: 3 feet. Used for fresh or dried arrangements. Birds feed on the seed. Good accent plant. L

Perennials

98. *Chasmanthium latifolium*. Wild oats. Height: 5 feet. Zone 3. A,B,L

99. *Cortaderia fulvida* (syn. *Arundo conspicua* var. *fulvida*). Height: 6 feet. Flowers pale golden brown. Native to New Zealand. Zone 8. B,L

100. *Festuca alpina*. Height: 10 inches. Leaves are soft green. Zone information is unknown. N

101. *Festuca amethystina superba*. Height: 18 to 30 inches. Blue foliage. Zone 4. L

102. *Miscanthus sinensis*. Chinese silver grass. Height: 8 feet. Upright clump with pale pink to red flowers lasting from fall through the winter. Can be used for dried arrangements. Zone 5. B,L

Trees and Shrubs

103. *Acer miyabei*. Miyabe maple. Height: 30 to 40 feet. Has an upright, oval form. Zone 4. Ec, L

104. *Acer paxii*. Height: 30 feet. An evergreen maple with three-lobed, thick and leathery leaves. Seed pods (samaras) have wings diverging at right angles. Zone 7. N (Ec is probably helpful).

105. *Alnus glutinosa*. Black alder. Height: 40 to 60 feet. Grows quickly and does well in

wet areas. Has a pyramidal habit and makes a good ornamental tree. Zone 3 to 7. Ec,L

106. *Arctostaphylos stanfordiana*. Stanford manzanita. Height: 6 feet. Evergreen shrub. Pink flowers, early spring. Reddish-brown berries in the fall. Has a rounded form and red bark. Zone 7. F,Db,Ec

107. *Athanasia parviflora*. Height: 3 feet. Evergreen shrub native to South Africa. Finely divided foliage. New growth is a silver-green color. Flowers are medium yellow, late spring. Zone information is unknown. M

108. *Betula lenta*. Sweet birch. Height: 40 to 55 feet. Is resistant to the bronze birch borer. Has a pyramidal form when young and a rounded and spreading habit when mature. Zone 3. Ea,L

109. *Cassia alata*. Ringworm cassia. Height: 8 feet. Shrub with spiky yellow flowers that resemble candles. Drought resistant. Zone 9. F

110. *Cercidiphyllum japonicum*. Katsura tree. Height: 40 to 60 feet. An excellent specimen with fast early growth. Has bluish-green leaves that change to yellowish-orange in the fall. Difficult to transplant. Zone 4 to 8. L

Some Apt. Solutions

Apartment dwellers can take advantage of the seed program too! Try growing the calendulas (#1), gazanias (#9), and marigolds (#16 and #17) in a large tub on your front porch. Or produce fresh vegetables with baby and mini carrots (#135), Baby Bibb lettuce (#144), Minnesota Midget melon (#146), and Basket King tomatoes (#151) in containers.

111. *Chionanthus retusus* var. *serrulatus*. Asia fringe tree. Height: 20 feet. Fringed white flowers bloom in early summer. Leaves have saw-toothed margins. Zone 6. Da, Ea, M. Germination can take up to a year.

112. *Cladrastis lutea*. Yellowwood. Height: 40 feet. Flowers are white, fragrant, early summer. Bark is similar to beech. Zone 5. G (steep seed in hot water for 36 hours until swollen)

113. *Cupressus sargentii*. Sargent cypress. Height: 45 feet. Slender, bushy evergreen tree with small cones. Dark gray bark, gray-green leaves. Zone 8. Ea

114. *Fraxinus bungeana*. Ash. Height: 15 feet. A small ash native to China. Zone 4. N, (Ec probably helpful).

115. *Gleditsia triacanthos*. Honey locust. Height: 70 feet. Open, spreading crown, fast growing. Leaves are pinnately and bipinnately compound; seed pods are brown and up to 8 inches long. Zone 3 to 9. F, L

116. *Gymnocladus dioica*. Kentucky coffee tree. Height: 60 to 75 feet. A good tree for large areas but slow-growing. Leaves are bipinnately compound; brown seed pods are 5 to 10 inches long. Seed was used by early settlers in Kentucky as a coffee substitute. Zone 3 to 8. F, L

117. *Hibiscus syriacus*. Rose-of-Sharon. Height: 8 to 12 feet. Deciduous shrub, upright and slightly spreading. Flowers are hibiscus-like, white, reddish, purplish, 3 inches in diameter, July through September. Native to China and India. Zone 5 to 8. A, B, L

118. *Koelreuteria paniculata*. Golden-rain tree. Height: 40 feet. Dense, rounded outline

A Joy Forever

For dried floral arrangements, try growing **gypsophila (#10), strawflowers, (#11), and immortelle (#18)**. Plants that produce interesting pods for arrangements include the **love-in-a-mist plant (#12), which produces a balloon-shaped fruit; the money plant (#47), which produces round, flat, papery-thin "silver dollars;" and teasel (#76)**. Grasses such as **cloudgrass (#92), green foxtail (#97), and Chinese silver grass (#102) maintain their shape when cut and can be used as vertical accents in an arrangement or by themselves in a vase.**

Save this catalog!

with yellow flowers that bloom in early summer. Leaves are pinnately or bipinnately compound. Fall seed pods resemble miniature Chinese lanterns. Zone 5 to 9. F, Ec

119. *Kolkwitzia amabilis*. Beautybush. Height: 15 feet. Deciduous shrub. Flowers pink, late May-early June. Red autumn foliage. Fast growing. Zone 4 to 8. L

120. *Lespedeza bicolor*. Bush clover. Height: 10 feet. Flowers are rosy-purple, July-August. Zone 4 to 8. G, L

121. *Lonicera tatarica*. Tatarian honeysuckle. Height: 10 feet. Flowers are pink to

white, very fragrant. Red or yellow fruit that attracts birds. Zone 3. Ec

122. *Parkinsonia aculeata*. Jerusalem thorn. Height: 30 feet. Foliage is fernlike. Flowers are yellow, early spring. Can be clipped for use as a hedge. Zone 9. N

123. *Pterocarya stenoptera*. Chinese wingnut. Height: 30 to 50 feet. A handsome shade tree for large areas; it has nice foliage and unusual seed pods that have large papery "wings" surrounding the nuts. Zone 6. Ec, L

124. *Rhodotypos scandens*. Black jetbead. Height: 6 feet with a 9-foot spread. Loosely branched shrub. Flowers are white, May to early June. Tolerates most any condition. One of the better shrubs for poor conditions and heavy shade. Fast growing. Zone 4 to 8. Da, Ea, M

125. *Staphylea trifolia*. American bladder-nut. Height: 15 feet. Thrives in partial shade, moist soil. Shrub native to eastern United States. Zone 3 to 8. Ec, M

126. *Syringa pekinensis*. Peking tree lilac. Height: 15 feet. June flowers are yellowish-white. Purplish, peeling bark. Zone 3 to 7. Da, Eb

127. *Syringa reticulata*. Japanese tree lilac. Height: 30 feet. Similar to above, except larger, and blooms about two weeks earlier. Zone 3 to 7. Da, Eb

128. *Ulmus parvifolia*. Chinese elm. Height: 40 to 50 feet. Has a graceful, round-headed habit. Resistant to the Dutch elm disease, elm leaf beetle, and the Japanese beetle. Easy to grow. Zone 4 to 9. Eb, L

129. *Viburnum prunifolium*. Black haw. Height: 15 feet. A round-headed, small, hawthorn-like tree with white flowers, early June. Has blue-black fruit. One of the best viburnums for the North. Zone 3. De, Ec, M

130. *Viburnum sieboldii*. Arrowwood. Height: 15 to 20 feet. Large shrub, open habit, stiff branches. Excellent landscape specimen. Zone 4 to 7. Ec, M

Seed Performance Evaluation 1989

We have provided this form for you to copy so that you can record the germination and growth of each species you order.

Species: _____

Sowing Date: _____ Number: _____

Germination Date: _____ Number: _____

Germination Medium: _____ Germination Temp.: _____

Planting (Transplanting) Date: _____

Flowering Date: _____ End of Flowering Date: _____

Harvest Date: _____ USDA Hardiness Zone: _____

GROWING CONDITIONS

Light: Full Sun Morning Sun Only Afternoon Sun Only Full Shade

Temperature this year: Normal Above Normal Below Normal

Rainfall this year: Normal Above Normal Below Normal

Disease and Insect Damage: High Low

Plant Vigor: Excellent Good Poor

Dry and High

If the summer of '88 drought has discouraged you, take heart. Trying plants with a low water requirement may mean that you won't have to drag out your garden hose quite as much if drought strikes again in '89. Among those in our catalog are blanket flower (#41), rain cape marigold (#57), toadflax (#62), scarlet flax (#63), California bluebells (#67), fiddleneck (#68), sea holly (#78), and desert hollyhock (#90).

Vegetables

131. Acorn squash. Plants normally bear about five medium-large dark green fruits near the center of the plant. The orange-yellow interior has a delicious flavor and smooth texture when baked. Fruit stores well into the winter. Matures in 75 days. B,L

132. Beet 'Early Wonder'. Smooth skin and semi-globed shape; about 2½ to 3 inches in diameter. Used for table, canning, and pickling. Matures in 55 days. B,L

133. Broccoli 'Cape Queen'. Produces heavy center head followed by many side shoots. Matures in 64 days.

134. Cabbage 'Danish Ballhead'. Keeps well in storage. Matures in 100 days.

135. Carrots. Baby and mini. Roots are small, deep orange to red, and ball-shaped. Tender and sweet-tasting. Matures in 68 days. B,L

136. Cauliflower 'Stovepipe'. Performs well in summer but has no fall frost resistance. Matures in 47 days.

137. Cauliflower 'Tropical Pride'. Matures in 52 days.

138. Cauliflower 'White Empress'. Performs well in summer but lacks fall frost resistance. Medium-sized head. Matures in 61 days.

139. Celtuce. Burpee's. Combines the uses of celery and lettuce. Leaves are used for salad or boiled. Heart of stem tastes like celery and can be eaten raw or boiled. Grows like lettuce. Matures in 75 days for foliage harvest; 90 days for stalk harvest. B,L

140. Chicory. A perennial vegetable, the foliage has a sweet, tangy taste, excellent for salads. It forms tight heads that are cabbage-like in appearance. Zone 5. B,L

141. Corn 'Red Dent'. An edible, large-eared corn that has white kernels until it begins to age—then kernels turn red beginning at the tip. This is a good edible corn, especially when in the soft, white stage. Very colorful and ornamental. Plant at least 3 rows, 30 inches apart, with plants 12 inches apart. B,L

142. Cucumber 'Burpee's M&M Hybrid'. Resistant to mosaic and mildew. Heavy producer; slender, dark glossy green fruit is 8 inches long. Matures in 64 days. B,L

143. Cucumber 'Early Pride'. A hybrid that produces straight cucumbers early in the season and keeps on producing throughout the season. Fruit is 8½ by 2 inches. Matures in 55 days. B,L

144. Lettuce 'Baby Bibb'. From Shep-

herd's Garden Seeds. Small, tender leaves only 5 to 6 inches in diameter. They form small, green rosettes of teardrop-shaped leaves. A vigorous grower. Matures in 60 days. B,L

145. Lettuce 'Merveille des Quatres Saisons'. A French lettuce with huge, red-tipped leaves that surround tightly-folded green

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- Db** Warm stratification of 3 months.
- Dc** Warm stratification of 4 months.
- Dd** Warm stratification of 5 months.
- De** Warm stratification of 6 months.
- Ea** Cold stratification of 30 days.
- Eb** Cold stratification of 60 days.
- Ec** Cold stratification of 90 days.
- Ed** Cold stratification of 120 days.
- F** Scarification
- G** Hot-water soak
- H** Light recommended for germination.
- I** Dark recommended for germination.
- J** Cool temperature required for germination (55° to 60° F)
- K** Warm temperature required for germination (80° F)
- L** Easy to germinate.
- M** Difficult to germinate.
- N** No reliable germination information.

hearts. Can be grown quite late in the spring as well as late summer and in the fall. Matures in 60 days. B,L

146. Melon 'Minnesota Midget'. Useful for small spaces, this cantaloupe produces 4-inch fruit on a 3-foot vine. Matures in 75 days. B,L

147. Mustard 'Red Salad'. From Shepherd's Garden Seeds. Deep red leaves. Flavor is like Dijon mustard. Cool season crop. B,L

148. Onion 'Eclipse'. Matures in 80 days.

149. Pumpkin 'Munchkin'. From Shepherd's Garden Seeds. Miniature versions of old-fashioned pumpkins, these reach only 3 to 4 inches in diameter. Is both ornamental and has a sweet flavor. Matures in 85 days. B,L

150. Sweet Pepper 'Burpee's Tasty Hybrid'. Shape of fruit and thick walls make it good for stuffing. Matures in 72 days. B,L

151. Tomato 'Basket King Hybrid'. Small fruit; good for hanging baskets or container growing. Matures in 55 days.

152. Tomato 'Coldset'. Performs well in cool, early spring weather. Bushy, compact plant with fruit weighing 6 ounces. Matures in 70 days.

153. Turnip 'Milan Red Top'. Matures in 35 days.

154. Watermelon 'Early Kansas'. Round with a striped rind and fine textured flesh. Weighs 30 pounds. Matures in 80 days.

Herbs

155. Anise Basil. *Ocimum*. Annual. Used in Thai and Cambodian cuisine, and in Italian dishes. Vigorous plant with rosy-colored flowers. A,B,L

156. Basil. *Ocimum basilicum* var. *neapolitanum*. Annual. Indispensable to Italian cooking. A,B,L

157. Dill. *Anethum graveolens*. Height: 3 to 4 feet. Annual, reseeds. Used as flavoring for pickling, potato salad, and meat dishes. B,L

158. Florence fennel (finocchio). *Foeniculum vulgare* var. *dulce*. A perennial grown as an annual. Height: 3 to 4 feet. Leaves have anise flavor. Used for seasoning, salads, eggs, fish, and sauces. Stems can be cooked and eaten as a vegetable. A,L

159. Hyssop. *Hyssopus officinalis*. Height: 2 feet. Shrubby plant can be clipped for a low-growing hedge. Aromatic leaves. Flowers are blue. Native to Mediterranean region. Zone 3. A,B,L

160. Italian parsley. *Petroselinum crispum* var. *neapolitanum*. Biennial. Leaves are flat. Most flavorful of all parsleys. B, G, I, L

161. Kablouna calendula. Annual. Height: 20 inches. Edible gold and orange flowers add color and flavor to egg and cheese dishes and salads, saffronlike flavor to rice dishes. Prefers cool temperatures. Will bloom through fall. A,B,I,L

162. Parsley. *Petroselinum crispum*. Biennial. Leaves are very curly. B,L

163. Peruvian Basil. *Ocimum micranthemum*. Height: 1 to 1½ feet. An annual with flat, bright green leaves used in cooking. Some find its flavor unpleasantly medicinal. L

164. Rosemary. *Rosmarinus officinalis*. Height: 4 feet. Flowers are blue and bloom in the spring to early summer. Use for seasoning for lamb, chicken, stews, and vegeta-

bles. Can grow as a pot plant in the North. Zone 8. A,L

165. Rue. *Ruta graveolens*. Height: 2 to 3 feet. Flowers are yellow and bloom in mid-summer. Needs heavy mulch in the winters in the North. Zone 5. A,B,L

166. Sweet marjoram. *Origanum ma-*

ajorana. Annual. Height: 2 feet. Has minute white-pink flowers that bloom in mid-summer. Foliage is used for flavoring and as a headache cure. B,L

167. Tansy. *Tanacetum vulgare*. Herbaceous perennial. Height: 3 feet. Flowers are yellow and buttonlike. Strongly scented foliage. Used for dyes. Zone 3. A,B,L

Plants for Home or Greenhouse

The plants listed below can be grown outside only in Zone 10 unless otherwise noted.

168. *Adenantha pavonina*. Red sandalwood. Height: 5 feet. Evergreen shrub. Flowers: white and yellow, 6 inches. Native to India. Requires rich soil, bright light; allow to dry between waterings. Takes up to 4 months to germinate. F

169. *Agapanthus africanus*. Lily-of-the-Nile. Height: 48 inches. Straplike leaves, ½ inch wide. Flowers are funnel-shaped, light porcelain blue with darker centers and margins. About 12 to 30 flowers are borne on a tall spike. Also can be grown outdoors in Zone 9. A,L germinates in 25 to 35 days.

170. *Agapanthus* 'Peter Pan'. Height: 20 inches. Cultivar of above. Zone 9. A,L germinates in 20 to 30 days.

171. *Beschorneria yuccoides*. Height: 4

feet. An evergreen shrub with gray-green leaves. Flowers are 2 inches long with bright red bracts, coral-red flower stems. Cultivation is the same as for yuccas. N

172. *Dietes* spp. African iris. Height: 2 feet. Flowers are lemon yellow, similar to an iris. Also can be grown outdoors in Zone 9. N

173. *Dioscorea batatas*. Cinnamon vine. Tuberos-rooted vine; grows up to 3 feet long. Tubers used for food in tropics (similar to a sweet potato). Flowers are cinnamon-scented. L

174. *Echinocereus fasciculatus*. Cactus. Forms clumps up to 18 inches across. Flowers are magenta. L

175. *Eragrostis variabilis*. Lovegrass. Height: 1 to 3 feet. A tufted, perennial grass. Native to Hawaii. N

176. *Erica baccans*. Berry heath. Height: 3 to 5 feet. Erect shrub. Tiny blue green leaves. Flowers: deep rose; fall and winter. Heather won't tolerate hard freezes, but prefers cool days, about 60° F. Full sun. Requires acid soil high in organic matter. L

177. *Erica curviflora*. Height: up to 5 feet. Flowers: red, orange, yellow, almost year around. Like *Erica baccans*, a native of South Africa. Takes about 4 to 6 weeks to germinate. L

178. *Fimbristylis cymosa* sp. *umbellatocapitata*. Height: 6 to 18 inches. Grass-like leaves. Flowers are brown and button-like. Native to Hawaii. N

179. *Libertia grandiflora*. Height: 3 feet. Flowers are white with a greenish outer part. A member of the iris family, this plant has rhizomes. Native to New Zealand. L

180. *Lophocereus schottii*. Whisker cactus. Erect, branching to 15 feet. Short gray spines, pink flowers. L

181. *Mimosa pudica*. Sensitive plant. Height: 18 inches. Leaflets fold when touched. Flowers resemble small pinkish-purplish puffs. Should not be confused with *Albizia julibrissin*, commonly called the mimosa, which is abundant and hardy throughout the southern United States. Can be grown as a summer annual.

Does not do well as a houseplant. Requires evenly moist soil, diffused light. L

182. *Opuntia polyacantha*. Prickly pear cactus. Height: 6 inches. Yellow flowers tinged with red. L

183. *Passiflora edulis*. Passion flower. Climbing habit. Flowers are white with white and purple crown. Edible fruit is 3 inches long. N

184. *Pelargonium ribifolium*. Geranium. Native to South Africa. Flowers are white. M

185. *Podachaenium eminens*. Height: up to 25 feet. Shrub with 9-inch-long leaves. Flowers are 1 inch across, daisylike. N

186. *Puya berteroniana*. A terrestrial bromeliad with spiny leaves, 3 feet long and ½ inch wide, that form a rosette. Flowers are metallic green-blue. L

187. *Puya ferruginea*. Terrestrial bromeliad, spiny leaves up to 6 feet long and 2 inches wide. Flowers are 5½ inches long and greenish-white. Has rust-colored hair on the flower axils and sepals creating a rust-red color. L

188. *Puya mirabilis*. Terrestrial bromeliad, leaves with spiny margins form a dense rosette. Native to South American Andes. Similar to *Puya ferruginea* but does not have the rust colored hair. L

189. *Sesbania tomentosa*. Height: 2 to 3 feet. A low-growing, spreading shrub. Spreads up to 10 to 20 feet. Branches and leaves have a silky, wool-like covering. Flowers are 1 inch long, red to orange. Native to Hawaii. N

190. *Strelitzia reginae*. Bird of paradise. Height: 3 feet. Showy, birdlike flowers with red, yellow, and blue markings. May take up to one year to germinate. G (3 to 4 days, change water daily),K,M

191. *Tabebuia impetiginosa*. Trumpet tree. Height: 20 feet. Flowers are 1½ to 3 inches long, purple. A showy ornamental. Native to Mexico. L

192. *Tribulus cistoides*. A prostrate, spreading perennial, spreading up to 3 feet. Flowers are yellow and attractive. Native to Hawaii. N

- A May be sown indoors in flats.
- B May be sown outdoors where they are to grow.
- C Sow indoors into peat pots to minimize transplant shock.
- Da Warm stratification of 2 months.
- Db Warm stratification of 3 months.
- Dc Warm stratification of 4 months.
- Dd Warm stratification of 5 months.
- De Warm stratification of 6 months.
- Ea Cold stratification of 30 days.
- Eb Cold stratification of 60 days.
- Ec Cold stratification of 90 days.
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- F Scarification
- G Hot-water soak
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- J Cool temperature required for germination (55° to 60° F)
- K Warm temperature required for germination (80° F)
- L Easy to germinate.
- M Difficult to germinate.
- N No reliable germination information.

Tropical Trees for Zone 10

193. *Brugmansia sanguinea*. Red angel's-trumpet. Height: 35 feet. Native to the Andes at 10,000 to 12,000 feet. The flowers are to 10 inches long and red-yellow. L

194. *Caesalpinia pulcherrima flava*. Pride of Barbados. Height: 15 feet. Shrub, often used for hedge. Mimosalike leaves, yellow flowers. Requires rich soil, bright light. Soil should not be allowed to dry out, but do not overwater. Germinates slowly. G

195. *Camptotheca acuminata*. Height: 75 feet. A deciduous tree, fast growing and a good shade tree. Leaves are 6 inches long with attractive blooms. L

196. *Cassia spectabilis*. Height: 40 to 50 feet. Flowers are 1½ inches across and bright yellow. N

197. *Ceiba pentandra*. Commercial kapok. Height: 120 feet. Tropical, deciduous tree. White

to pink flowers, 6 to 8 inches across. Kapok, the long cotton-like fibers around the seed, is used to make insulation and padding. Good shade tree. If started in the greenhouse, use good loam soil; water thoroughly and allow to dry between waterings. Attracts bees, a good honey plant. L

198. *Delonix regia*. Flame tree. Height: 40 feet. Flowers are scarlet and yellow, summer. Grows rapidly. Native to Madagascar. N

199. *Erythrina indica*. Coral tree. Height: 30 to 60 feet. Red flowers in mid-winter, early spring. Requires rich soil. Allow to dry between waterings. Takes 2 months to germinate. G

200. *Jatropha curcas*. Physic nut. Height: 15 feet. Small tree with maple-like leaves and yellow-green flowers. Seed contains a purgative oil, poisonous if eaten in large amounts. N

201. *Markhamia platycalyx*. Height: 40 feet. An evergreen tree with 2-inch flowers, yellow with red markings. N

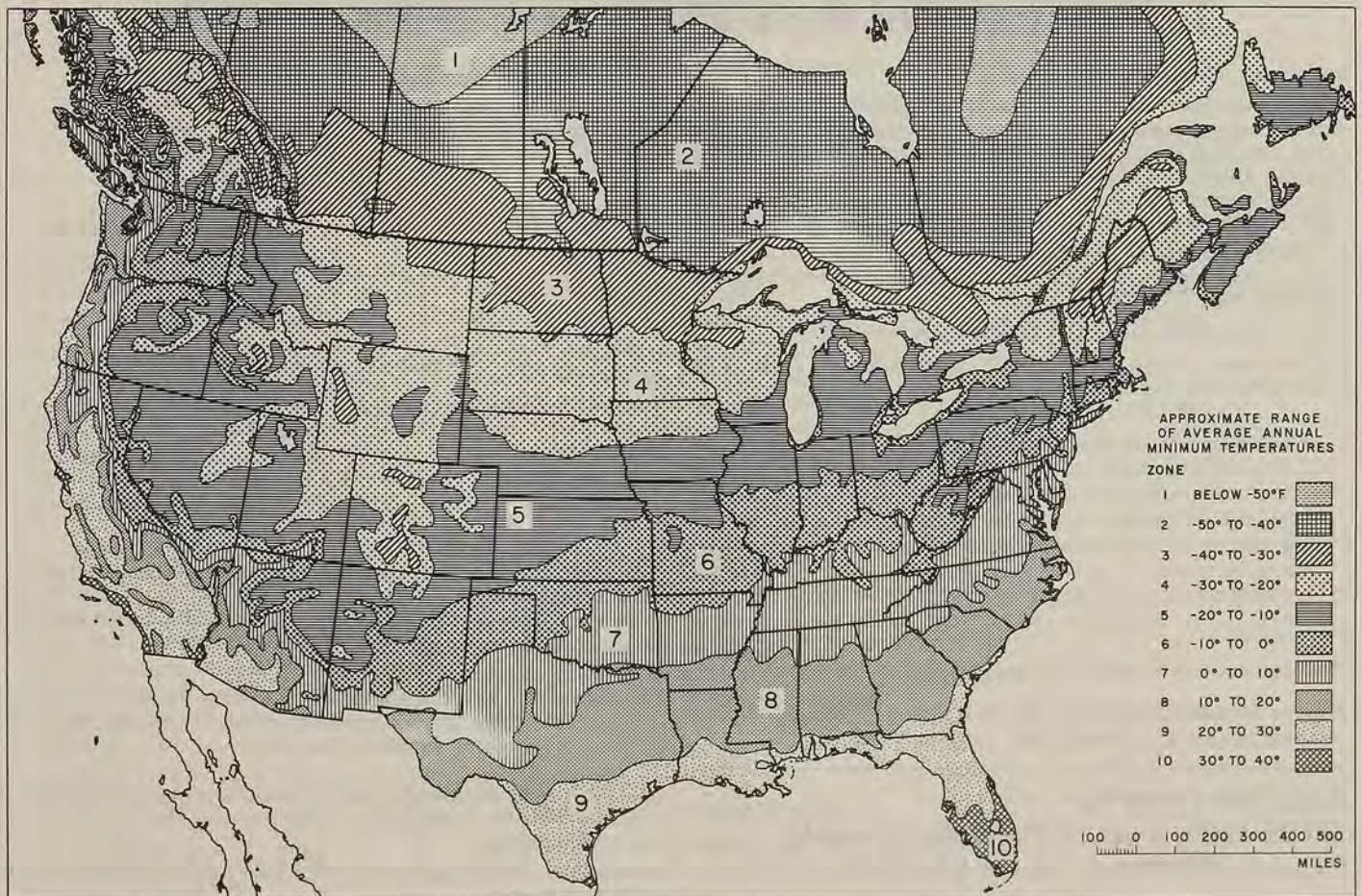
202. *Pachycereus pringlei*. Giant Mexican cactus. Treelike cactus up to 70 feet tall. Flowers are white and malodorous. L

203. *Peltophorum pterocarpum*. Yellow flame tree. Height: 50 feet. Leaves are fern-like but evergreen. Flowers are bright yellow. N

204. *Plumeria rubra*. Frangipani. Height: 15 feet. Flowers are dark pink, large and waxy. This seed was collected from the Florida State Champion Tree. Native to Mexico and Ecuador. N

205. *Wilkesia gymnoxyphium*. Iliau. Height: 10 feet. Flowers: yellow, bloom profusely in June and July. A member of the composite family. K,L (2 weeks)

USDA Hardiness Zone Map



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| 4. _____ | 8. _____ | 12. _____ | 16. _____ |

17. _____ Please send me the supplemental list

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Gardener's Q&A

Whether you are frustrated by bloomless bushes or just curious about a particular species, we can help find the answer. This column is based on questions posed to the AHS Gardener's Information Service.

Q: I have a *Hydrangea arborescens* in my yard that does not produce very many showy blossoms. It does receive full sun, and there are no pests that I can see. Why does it not flower very well, and what can I do to increase the number of blossoms? Also, I have heard that hydrangeas have sterile flowers. What are sterile flowers?

—R.H., Ann Arbor, Michigan

A: Hydrangeas do have two types of flowers. There are very small flowers (not showy or beautiful) that are fertile, and there are large, flat, usually four-petaled flowers that are sterile. The sterile flowers have no stamens or pistils and are, therefore, unable to produce seed. These are the ones that gardeners usually enjoy because they are large and showy. People

often expect their hydrangeas to produce large, showy flowers, but many produce both sterile and fertile flowers, and some produce more fertile than sterile flowers.

The *Hydrangea arborescens* typically has fertile flowers (small, non-showy) and very few sterile flowers (large, showy flowers). It may seem that it is not producing very many flowers when in fact it is producing many fertile flowers. Unfortunately, there isn't much you can do to increase the number of sterile flowers per flower head on this plant; however, there are other hydrangeas that are bred to produce an abundance of sterile, showy flowers.

If your plant is not producing flowers at all, it could be because there is too much fertilizer or nitrogen, which promotes vegetation but not flowers, or the soil may be too poor, or there may be too much shade, or the plant hasn't been pruned properly. One way to increase flower production is to prune the bush to about three inches above the ground in the fall, because flowers appear on the new shoots the following year. This is particularly true for this hydrangea, but not true for all hydrangeas.

Q: A friend gave me a beautiful flowering amaryllis plant for the holidays. How do I take care of it when it stops blooming, and what should I do to make it bloom again next year?

—L.C., Milwaukee, Wisconsin

A: The amaryllis plant, *Hippeastrum* spp., is a non-hardy, bulbous houseplant that has been bred extensively to produce large, colorful flowers during the holiday season. Your amaryllis plant can produce beautiful blossoms again, but you should be aware that often an amaryllis plant will not bloom the second year after purchase because the grower has cut off the roots after harvesting the bulb for sale—leaving the plant without any roots but with tremendous flowers the first year. The second year, the plant puts most of its energy into creating a root system, and not into flowering. Follow the steps below, and even if you do not get fantastic flowers next year, repeat the procedure again. You should get blossoms the following year.

1. After flowering, cut off the flower stalk, but not the leaves.
2. Continue to water and feed the plant,

allowing the soil to slightly dry out between watering.

3. After danger of frost has passed, put the pot in a shady corner of the garden; continue to water and fertilize the plant until the end of August. Or keep the plant inside in bright, indirect light and water and feed with houseplant fertilizer.

4. In the fall, bring the pot into the house and lay it on its side in a dry, cool, dark place. If you have kept the plant inside, move it to a similar place. This forces the bulb into dormancy. Do not water it; let it rest for three months.

5. At the end of three months, repot. Plant the bulb in a container with one inch of the bulb sticking out of the soil, and leave two inches between the bulb and the rim of the pot.

6. Water thoroughly and put in a sunny window, but do not water again until green leaves appear.

7. When leaves appear, resume normal watering, allowing the soil to dry out somewhat between each watering. Flowers should appear after six or seven weeks. If only leaves appear, let them flourish for the winter and summer, and repeat steps two through seven.

Q: I bought a bromeliad (*Aechmea fasciata*) when it was flowering, but now the flowers are gone and the plant has produced young plants from its side. What do I do with these young plants? Should I cut them off, and can I make them flower?

—D.G., Washington, D.C.

A: Bromeliad plants produce beautiful fluorescent flowers, but unfortunately for us they are monocarpic. They flower only once in their lifetime and die soon after. As they die down they produce "pups" or young clones. These should be left on the mother plant until they are mature enough to remove. Remove them when they assume the same coloring and shape as the mother plant.

Pot a pup in a small container using commercial potting soil high in organic matter. Water and fertilize the plant by spraying with a mister or spray bottle and keep water in the center cup of the plant at all times.

Pups must be mature to flower, and this could take up to two years. If at the end of



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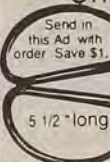
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two years they don't flower, try these tricks.

1. Apply an organic fertilizer high in phosphorus, or
2. Place the plant in a brighter or warmer place, or
3. Place the plant in a plastic bag with a ripe apple. The apple will release ethylene gas as it ripens, which stimulates flower production in bromeliads. Be sure you drain the water out of the center of the plant before you put it in the bag, and place the bag in a warm area but out of direct sunlight.

Q: I am looking for information on gardenias: what species are available, and how big are the flowers? My encyclopedia mentions "McLellan's 23," "Hadley," and "Fortuniana."
 —M.P., Old Forge, Pennsylvania

A: There are over 200 species of gardenias, all members of Rubiaceae. These shrubs or small trees are native to the tropics and subtropics of the Old World. The most popular one that we see in the nurseries is the cape-jasmine, or *Gardenia jasminoides*. This plant is a dense, rounded evergreen shrub with three-inch, white, waxy, fragrant flowers. There is a variety called *Gardenia jasminoides* var. *fortuniana*, which has larger, double blossoms that are four inches across. It also has larger leaves and is often sold as a potted house-plant. The two names you mentioned, 'Hadley' and 'McLellan's 23', are cultivars of *G. jasminoides* var. *fortuniana*. These are grown commercially in greenhouses for cut flower production.

Gardenias are not hardy plants; the cape-jasmine is hardy up to Zone 8, although you may find it in very protected microclimates such as the warm side of a house. They require soil that is deep, fertile, slightly acidic, and high in organic matter. They are heavy feeders and need a high-nitrogen fertilizer. It is best to mulch the plants and keep the soil moderately moist, but not waterlogged. In the colder northern states, they are grown indoors or in greenhouses.

In a greenhouse, they need temperatures of 62°F at night and about 67° to 77°F in the day, depending on the light intensity. Very humid conditions are required along with bright, indirect sunlight.

In the home, gardenias usually do not fair well due to the low humidity and reduced sunlight. The temperature must be 62°F for bud formation and the humidity must be over 60 percent at all times. They dislike drafts and cold water.

—Peggy Lytton
 Assistant Editor, Horticulture

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Cutaway view of knee pocket and pad

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Journey Into History: Establishing a Prairie

Awareness of natural habitats is enjoying something of an American renaissance. As part of this movement, more and more midwestern gardeners are establishing native prairies on their property. Along with a nostalgic and even romantic view of what Iowa—or South Dakota, or southern Minnesota, or Illinois—looked like in pioneer days, these landscapes provide the beauty of low maintenance and the serendipity of newly-discovered native plants. Paul Christiansen of Cornell College in Mount Vernon, Iowa, has this advice for those planning to establish a native prairie:

Before establishing a prairie, the benefits and liabilities should be addressed. On the benefit side, you can count on a long-term, low-maintenance ground cover that requires only occasional burning or mowing rather than the weekly attention a lawn demands during the summer. You will have the benefit of a wildlife cover that will attract a wide variety of organisms, from white-footed mice to seed-eating birds. In addition, the prairie will be a source of beauty all year long. In the spring and summer and into the fall, a parade of wildflowers will bloom. The coming of fall and the siege of winter will bring on the dry, golden-brown grasses and the interesting seed heads of the many flowers. Both the biotic and the visual diversity of a prairie lawn is many times greater than that of a conventional bluegrass lawn.

The liabilities of establishing a prairie are few, and not at all overwhelming. The most likely negative factor is to have your prairie regarded as a sign of neglect rather than a deliberate attempt to create a different type of ground cover. Your neighbors may wonder about property values and assume that strange creatures are hiding in the long grass. They may also question your motives of beauty and utility as being actually laziness and sloth. A good public relations program is needed before, during, and after the prairie is established to let observers know what is growing there and why. (Christiansen suggests that you may even want to put up a small sign—you can't talk with *all* the neighbors!)

Usually, the back yard is less exposed to public view and you can experiment more aggressively there. The backyard is also a good place to learn more about the behavior of a particular species and to serve as a source of plants for prairies in other parts of the yard.



Laura E. Cott

Grasses *Bouteloua curtipendula* and *Andropogon scoparius*; forbs *Geum triflorum*, *Echinacea purpurea*, and *Sisyrinchium* spp.

Site Selection

Native prairies are found on all kinds of sites and soils from dry, rocky hills to sandy soils to loamy soils to water-laden soils at marsh edges. Groups of species adapted to all these sites have been identified and can be used as guides for the prairie planter.

More important in site selection is its appropriateness to tall, non-uniform plants. Tall plants will hang out over the sidewalk and driveway edges, interfering with traffic. Aesthetically, the prairie forms may not be appropriate if they completely fill the front yard. By using a group of species with low growth characteristics, or by using prairie as an accent in the landscape, many of these objections can be overcome.

Guidelines for Establishment

There are three points to be observed in establishing your prairie:

- Remove all perennials from the site.
- Reduce the amount of weed competition by frequent shallow cultivations prior to seeding.
- Provide a firm seed bed by rolling or packing the area after seeding.

If perennial plants are not eliminated they will outcompete prairie plants coming up from seeds, and the length of time before the prairie will dominate the site will be extended by several years or, in a worst possible scenario, prairie seedlings may be eliminated entirely. Where prairie seedlings have little competition from weed seedlings, establishment of the prairie can take as little as one or two years. The usefulness of packing the seed bed has been observed in the wheel tracks of otherwise unpacked seedbeds, where seedlings are often denser than in adjacent ground.

Seed Selection

The geographical source of seeds you select is the first consideration. If you require that your prairie be as similar as possible to native prairies in your area, you should acquire seeds from suppliers who can guarantee that their seed is from plants originating within 50 to 100 miles of your site. A less restrictive approach is to select varieties whose origin is in your area, especially in latitude. This may not correspond to the varieties recommended by sellers, who often recommend varieties that actually originated several hundred miles south of where the buyer is going to plant it.

Most prairie establishment projects use five native, warm-season grasses as principal components of their cover. These species are big bluestem (*Andropogon gerardii*), Indiangrass (*Sorghastrum avenaceum*), switchgrass (*Panicum virgatum*), little bluestem (*Andropogon scoparius*), and side-oats grama (*Bouteloua curtipendula*). The first three are tall grasses, up to six or more feet when in flower, while the last two are mid-grasses, up to about three feet tall when flowering. A typical mixture for an upland site is four pounds of big bluestem, two pounds of Indiangrass, 1.5 pounds of little bluestem, 1.5 pounds of side-oats grama, and one pound of switchgrass per acre.

The selection of forbs (non-grassy herbaceous plants) to add to the seed mixture is a matter of individual taste and economics. Aggressive species that compete well with grasses will be the most useful in

providing variety in a prairie establishment. Selection of a group of species providing a continuous progression of blooming periods throughout the growing season is also important. In addition, the size of the plants and the color of their flowers should be taken into consideration. Finally, the forbs could easily be the most expensive component of the seed mixture, with some species of forbs selling for as much as \$250 per pound.

Forb seeds can be obtained by collecting from prairie remnants in the summer and fall. Tag the species while they are in bloom; their distinguishing features may be quite different when the plant is in fruit. When dried, the seeds should be threshed from the other flower parts, cleaned, and stored in a cool, dry place until the following spring. For both purchased and collected seed, cold treatment while moist (stratification or vernalization) enhances the germination rate for most species and is required for some species.

Preparation and Planting

Seed bed preparation is similar to that for a small grain crop or a lawn, except that no fertilizer is added. Soil is tilled and harrowed, both to kill any existing vegetation and to break up and smooth the soil. Where possible, several shallow harrowings during the spring prior to seeding are very beneficial. With each cultivation, a portion of the weed seed bank in the soil is destroyed. Take care not to bring up more deeply buried weed seeds.

Seeding can be done with a grain drill equipped to handle light, fluffy seeds and chaff; with a hydroseeder; or seeds can be scattered by hand. After seeding, the site should be rolled or packed. This will bury seeds at the correct depth (of about 1/4 inch) and firm the soil particles around the seeds, hastening transfer of moisture to the seeds.

In highly erodible situations or for other reasons, it may be desirable to use a herbicide to eliminate the existing vegetation prior to seeding.

After Seeding

Post-seeding management is usually minimal. One or two mowings can be made if weed competition is severe. However, the mower blades must be set eight to 12 inches above the soil surface to prevent cutting the tops off developing prairie plants. Successful stands have been made in very heavy weed competition without mowing.

In the second growing season following seeding, spring burning is desirable. If burning is impossible because of local ordinances, surrounding structures, or other conditions, mowing and removal of the

clippings at the same time that burning would be done will have a similar effect.

Three years is usually required for a dominant prairie stand to develop. In particularly good conditions, two years might be sufficient, but sometimes four years is necessary. Don't be discouraged when few, if any, recognizable prairie plants show up during the first year. During this time prairie species are mostly growing downward, establishing extensive systems. Most forbs do not bloom until the third year.

A prairie reconstruction project can be an interesting hobby. Yard work will become a positive activity. Instead of eliminating undesirable plants to achieve a monoculture of Kentucky bluegrass, you will be adding diversity, watching anxiously for particular species to come into flower, and learning more about native prairies near you. Lawn care problems will be changed considerably. Instead of deciding when to water, spray, or mow, you might be deciding which species to add, where to move over-abundant plants, or how best to discourage a particularly vigorous species. You may decide, on the other hand, to let nature take its course, and sit back and enjoy the show. In any case, your goals for lawn care will be reversed; you will be encouraging diversity rather than discouraging it; you will be working with nature rather than against it. Good luck.

—excerpted, with permission, from the University of Iowa Iowa Prairie Blazing Star

AABGA Publishes 1989 Internship Directory

The Internship Directory 1989, listing over 500 internships and summer jobs for students at 122 public gardens, including the American Horticultural Society's River Farm, is now available from the American Association of Botanical Gardens and Arboreta. The directory lists the garden's address and contact person, deadlines for applications, positions available, hours and salary, plus comments about the positions and the educational benefits offered.

Internships and summer jobs at public gardens are an excellent way to prepare for a career in horticulture. Application deadlines are often early in the year, so students should make their summer plans now.

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Gardener's Bookshelf

All of the following books are available through the Society's Book Service. The last five, offered in previous issues, should be particularly useful in planning your 1989 gardening. To order, use the form on page 17.

The Gardener's Bed-Book

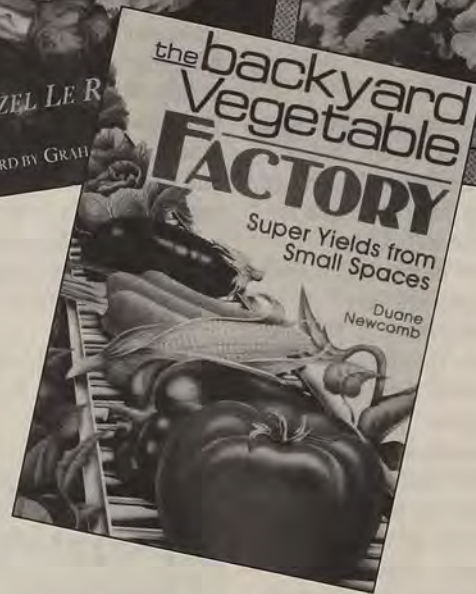
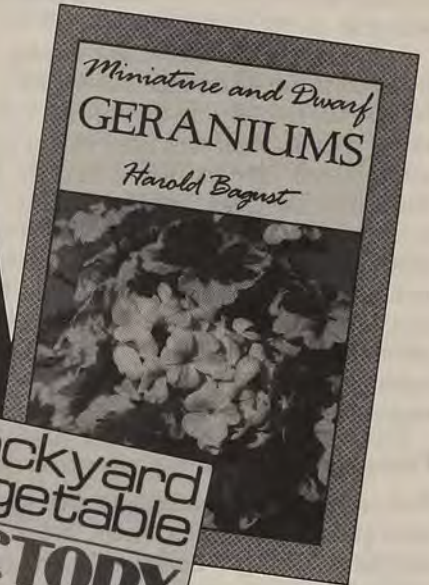
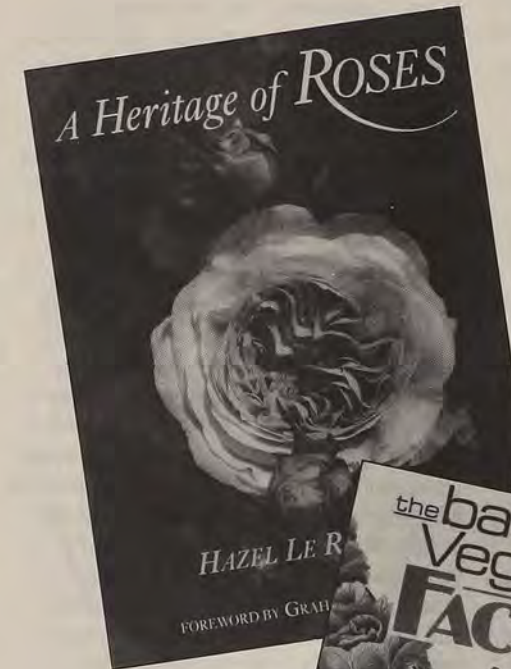
This American classic was first published in 1929; it is now back in print. A day-by-day compendium of advice, notes, and anecdotes, it was written by one of the most influential garden writers in the first half of the century. Wright edited *House and Garden* magazine for nearly four decades and was the author of numerous gardening books. In his preface to this new edition, Allen Lacey writes: "By the time a bed-reader has spent a year with Richardson Wright next to his pillow, he will appreciate having the company of a congenial soul with a good sense of humor and a well-furnished mind, and the manners of a gentleman." By Richardson Wright. Paj Publications, New York, New York. 341 pages. Publisher's price: \$20.95. AHS member price: \$18.85.

Miniature and Dwarf Geraniums

This a completely revised, rewritten, and expanded edition of the author's previous book, *Miniature Geraniums*, published in 1968 and still much in demand. In it, the author shares his expertise based on over 50 years' experience as a commercial grower of geraniums. These very popular plants of the genus *Pelargonium* have long attracted collectors, who will find in this book all the information needed for successful growing, from propagating to potting to culture. Nearly 500 cultivars are described, including the most recent introductions. Also furnished is a list of specialist nurseries both here and abroad, and a directory of societies devoted to geraniums and pelargoniums. By Harold Bagust. Timber Press, Portland, Oregon. 163 pages. Publisher's price: \$32.95. AHS member price: \$28.00.

A Heritage of Roses

The recent revival of interest in older roses has sparked a revival of interest in their history, as well. Hazel Le Rougetel has gracefully distilled the results of 15 years of research and travel throughout the world into this book, a tour through the history



and distribution of roses in the past several centuries. She explains where and how the first roses arrived in a country, how they were propagated, and how they were redistributed internationally. She also gives advice on garden design with roses, how to associate roses with other plants, how to plan color schemes, and how to maintain interest in the formal garden. By Hazel Le Rougetel. Stemmer House Publishers, Inc., Owings Mills, Maryland. 176 pages. Publisher's price: \$29.95. AHS member price: \$23.35.

Flowers from the Royal Gardens of Kew

This book offers its readers the extraordinary opportunity to view a selection of exquisite horticultural watercolors associated with *Curtis's Botanical Magazine* and its successor, *The*

Kew Magazine. *Curtis's*, a British scientific journal preeminent in its field, celebrated its bicentennial in 1987, making it the world's oldest continuously published journal with colored illustrations. Though almost entirely unknown to the general public, with fewer than 1,000 subscribers, it has been one of the main influences in British and American gardening throughout its 200 years. The journal has played a leading role in transforming British and American landscapes. By Ruth L. A. Stiff. University Press of New England, Hanover, New Hampshire. 80 pages. Publisher's price: \$15.95. AHS member price: \$14.35.

The Annual Garden.

With a center of lavish color plates and illustrated by the author throughout, this one-volume reference is intended to help the reader design a garden of annuals with an

eye to color intensity, suitability of plants, and diversity of choice. It describes more than 300 flowers, grasses, vines, vegetables, and fruits; answers a wide range of questions; and provides a list of gardening publications, seed exchanges and companies, and garden equipment catalogs. By Peter Loewer. 242 pages. Rodale Press, Inc., Emmaus, Pennsylvania 18049. Publisher's price: hardcover, \$19.95. AHS member price: \$15.95.

The Backyard Vegetable Factory.

Describes innovative techniques such as vertical and container gardening, dynamic plant grouping and water conservation to help people with limited time and space bring more than 60 different vegetables from seed to supper table. Includes extensive charts and step-by-step illustrations. By Duane Newcomb. 264 pages. Rodale Press, Inc., Emmaus, Pennsylvania 18049. Publisher's price: hardcover, \$19.95. AHS member price: \$15.95.

The Mail Order Gardener.

A source guide to flowers, vegetables, trees, shrubs, tools, furniture, greenhouses, gazebos, and "everything else a gardener could wish for." Handsomely illustrated with nineteenth-century woodcuts and drawings, it offers tips on topics such as gardening with children and growing giant vegetables. By Hal Morgan. 287 pages. Harper & Row, New York, New York 10022. Publisher's price: softcover, \$12.95. AHS member price: softcover, \$10.35.

The Naturalist's Garden.

To help design landscapes that will attract, feed, and shelter wildlife, the book includes garden plans, charts of bird, butterfly, and bee feeding preferences, reading lists for wildlife gardening needs, and a wealth of wildlife lore. By Ruth Shaw Ernst. 272 pages. Rodale Press, Inc., Emmaus, Pennsylvania 18049. Publisher's price: hardcover, \$19.95. AHS member price: \$15.95.

Natural Pest and Disease Control.

Geared to helping the reader identify and eliminate or control garden pests and diseases and eliminating or controlling them without the use of harmful pesticides. Provides a valuable and well-organized supplement to other basic texts on organic gardening. By Jim Hay. 192 pages. Distributed by David & Charles, Inc., North Pomfret, Vermont 05053. Publisher's price: softcover, \$13.95. AHS member price: \$11.15.

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The American Horticultural Society offers the Bole Memorial Medals, designed by Victor Schreckengost, a nationally known sculptor and industrial designer. These medals are awarded to individuals for horticultural excellence at regional shows put on by plant societies who are members of AHS. The gold medal requires 15 species or cultivars of blue ribbon quality; the silver medal 8 species or cultivars. These need not be all of the same species. The medal measures one and a half inches across with a ring attached so it can be worn on a chain or ribbon. The date and the recipient's name can be engraved on the back.

Requests for applications, which must be made three months in advance of the event, can be obtained from Mrs. Benjamin P. Bole, Jr., Chairman, 1 Bratenahl Place, Cleveland, OH 44108.

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Future Lawns Will Save Mowing Time

Americans spend countless hours and over \$24 billion a year on their lawns. Jack J. Murray, a turf specialist with the USDA Agricultural Research Service's laboratory in Beltsville, Maryland, is doing his part to counter that trend. Some of Murray's experimental lawns need less watering and only a third as much mowing as conventional lawns.

One new turf in the final stages of testing is a zoysia grass that will be sold as seed rather than the more expensive zoysia plugs that homeowners now buy and plant. The zoysia needs to be mowed only one third as often as more conventional lawns, according to Murray, and tends to grow sideways, spreading out to cover the ground. It also tolerates drought.

Murray is working on lawn seed mixtures of zoysia and tall fescue that would stay green all year round. Today's zoysia varieties are mostly suited for southern states; zoysia lawns in the North turn brown over the winter. According to Murray, the zoysia seed in the mix will keep the grass green in the summer, and in many locations, the fescue will keep it green all winter. An experimental mix of the two grasses is undergoing final testing.

Murray evaluates new types of lawn grasses for disease resistance, vigor, smooth and even growth, and cold or heat tolerance,

as well as for their rooting power or blade width, factors that give the lawn a carpeted appearance.

Ohio to Protect Rare Daisy's Habitat

The state of Ohio has purchased more than 19 acres of quarry from Standard Slag Company in order to protect the native Lakeside daisy, the rarest plant in Ohio.

The delicate, weedlike plant grows only in the quarry, located in Catawba Island, and at two sites in Canada. It is on the state and federal endangered species lists. The state paid \$50,000 for the property, and took possession in October.

"We will treat the property as a nature preserve," said Jerry Cline, administrator of acquisitions for the Ohio outdoor recreation division. "It will have limited access, like many of our other preserves."

Cline said that part of the agreement calls for the state to move to preserve individual plants on the Standard Slag property. He said other states have expressed interest in transplanting the daisy to re-establish its population.

—reprinted, with permission, from the Toledo, Ohio, Blade, August 2, 1988

What Is AARS?

What is the All-America Rose Selections, Inc. (AARS), and what does the little green

and white AARS tag mean? AARS is a nonprofit organization of U.S. rose producers and introducers who test new rose cultivars and determine which, if any, can be recommended to the public as exceptional.

Companies submit roses to test gardens around the country that have met standards specified by the AARS Test Garden Committee. During the two-year testing program, the roses are known only by the numbers assigned to them by the AARS officials. A judge is assigned to each test garden. Most AARS judges are either professors in college horticultural departments or supervisors of large public gardens. They attend a national seminar on rose-judging methods sponsored by AARS every five years.

During the evaluation period, the roses are graded by a prescribed numerical scoring system on vigor, growth habit, disease resistance, foliage, flower production, bud and flower form, opening and finishing color, fragrance, stem, and overall value. Scores are compiled and compared with the other roses of the same test period and with the standards established by AARS.

Award winners are announced June first of the year preceding the year the cultivars are to be offered for sale by the rose industry. Press releases are issued to the media and an awards banquet is held to present the award plaques to the firms that introduced the new winners.



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