

NEWS EDITION

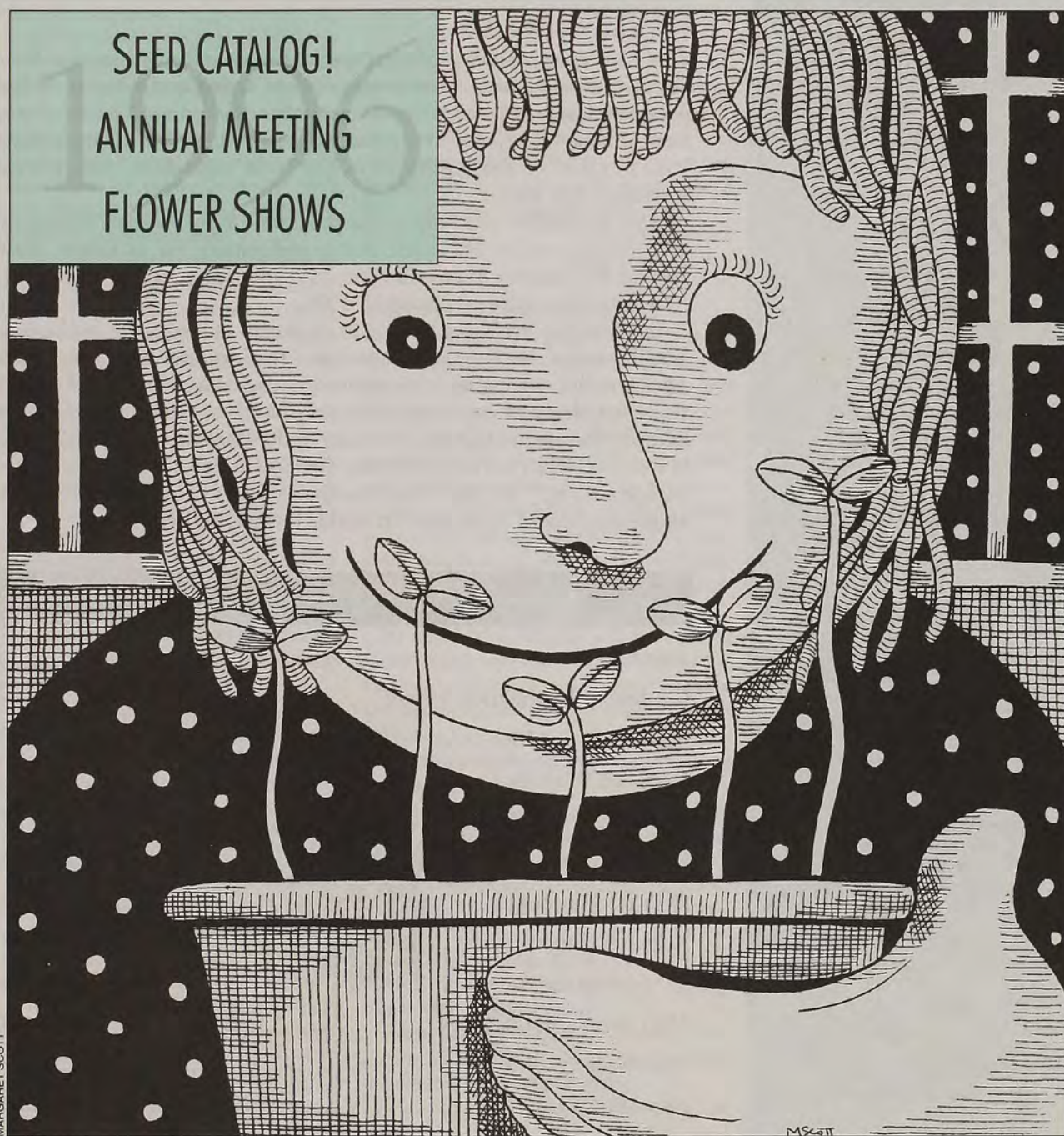
# American Horticulturist

January 1996

A Publication of the American Horticultural Society

\$3.00

SEED CATALOG!  
ANNUAL MEETING  
FLOWER SHOWS



MARGARET SCOTT



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# American Horticulturist

Volume 75, Number 1

January 1996

## ARTICLES

### Our Last News Edition

This issue of our News Edition is special for a number of reasons. We're always excited to bring you our annual Seed Catalog, and this year we kept pace with last year's record-breaking number of offerings. You can choose from among 405 types of seeds, and we're sure you'll find plenty to tempt you, whether you're interested in heirloom vegetables, *Pelargonium* species, or rare trees.

Also included in this issue is the program for our Annual Meeting, to be held this year in St. Louis, and a preliminary list of flower shows around the country that will offer free admission to members of the American Horticultural Society in 1996.

It is also the last News Edition to be mailed as a separate publication. You'll receive the February *American Horticulturist* as usual, and in April, you'll be receiving a redesigned, 64-page magazine, *The American Gardener*, that will encompass features of both our magazine and News Edition. We tried to incorporate many of the ideas that readers expressed in our last reader survey, including the most frequent comment: "Don't change a thing." We hope you'll recognize your old friend in spite of the bigger size, added color, more readable format, and new name.

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# MEMBERS' FORUM

## Rx for Chipmunks

In regard to the November letter from Boris Rubinstein of Long Island and his problems with chipmunks in his brick-in-sand terrace, here is a low-cost solution guaranteed to succeed.

He will need to remove enough bricks to excavate an area about four to six inches deep and two feet out in all directions from the entry hole of the chipmunks. Unlike groundhogs, who always dig multiple entry holes for their burrows, chipmunks rarely use more than one entry. Gardeners with any plantings in such an area should dig them up but not discard them.

Buy a piece of hardware cloth four by four feet and lay it into the excavated area with its center directly over the main entrance hole of the chipmunks. Hardware cloth is galvanized wire mesh, usually with half-inch-square openings—too small for chipmunks to penetrate. Bury the hardware cloth in the excavated hole and replace the bricks, or replant any perennials above the hardware cloth; if necessary, you may cut a hole six to eight inches in diameter to accommodate the plantings.

The chipmunks will be astonished to find that they can no longer dig a burrow at the same site, or even near, where they could once easily do so. When they relocate, it would be unusual for them to try to take up housekeeping near their old burrow.

These mischievous animals are so entertaining that I would probably prefer to allow them to reside under the terrace, trading the inconvenience of the burrow's location for the enjoyment I'd gain watching them forage and keep house next to my recliner as I sip lemonade in the summer sun. Mr. Rubinstein's experience should lay to rest the notion that chipmunks are shy creatures that will not live next to a house—utter bunk!

David L. Newcomer, M.D.  
East Petersburg, Pennsylvania

## A Second Opinion

Boris Rubinstein should try putting a metal (perforated) or masonry skirt with drain

holes around the perimeter of his terrace. The depth would depend on soil conditions, but of course it would have to go deeper than the "critters" would burrow.

Edwin Glenn Troutman, M.D.  
Fort Worth, Texas

## Veterinary Medicine

In answer to Mr. Rubinstein's problem of chipmunks on the terrace—acquire a cat. I was overcome by chipmunks at my previous house until a neighbor's cat encamped by their holes. In my present rural home, I have two cats on patrol and no problems (except deer!).

Tessa McDonald  
Hope, New Jersey

## Deer-Preventive Medicine

At my home near a park in Montgomery County, Maryland, deer are regular and hungry visitors to our garden. For the first few years we lived here, I tried the home remedies of human hair, moth balls, and products such as bloodmeal, bonemeal, and artificial fragrances in the hope of discouraging the deer from eating my tulips, roses, viburnums, and garden vegetables. For aesthetic and financial reasons, I did not wish to build a stockade fence, so I found myself feeding these handsome creatures.

At last, I tried to make a garden out of plants that deer won't touch. Searching for those poisonous to mammals gave me a fair beginning, but hardly enough to make a fine garden. I offer my list in the hope that it will provoke additional suggestions from other readers.

Deer-proof so far: alliums, bleeding hearts, *Buddleia*, *Cimicifuga*, crocuses, columbines, daffodils, foxgloves, lavender, mints, scilla. Others that they left alone for significant periods of time: *Artemisia* 'Silver King', *Astilbe*, birch, grape hyacinths, iris, nasturtiums, violets, wax begonias.

Please rush! Montgomery County is beginning to have public meetings about the depredations of these animals.

Sharon Palmer-Royston  
Potomac, Maryland



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## Pungent Cure

Like Boris Rubinstein, I have chipmunks and a brick patio. Fortunately, I also have many stone walls and the chipmunks prefer to live there.

I have, however, had a population explosion of rabbits in recent years. These rabbits prefer to eat all the tender new growth of woodland plants I am trying to establish.

At the Philadelphia Flower Show last year I purchased my first bottle of fox urine and have found it to be the *only* effective deterrent. The drawbacks are an extremely pungent odor and the expense. I find a few drops go a long way. The urine must be applied after each rain, but I feel the rabbits learn to avoid treated areas at least until next year.

Mary Liz Lewis  
Summit, New Jersey

*Fox urine is distributed by Johnson & Company, P.O. Box 2009, Bangor, ME 04402. It sells for \$8.99 for eight ounces, \$29.99 per quart, and \$99.99 per gallon, plus postage. Johnson also sells, for \$2.99 per half-dozen, foam "darts" that are supposed to wick the urine scent into the air. You can order by calling (800) 218-1749. They recommend this product for deterring rabbits, squirrels, and chipmunks.*

*For deterring deer, the company offers coyote urine, and for mice and moles, bobcat urine. Its president, Ken Johnson, kindly sent us a sample of coyote urine. We passed it along to Aubrey Glass, grounds supervisor at the American Horticultural Society's River Farm headquarters, who has had deer tramping through his private garden. If he finds it effective, we'll report back.*

*We couldn't resist asking Johnson the obvious question: How do they collect this...product? "It's a piece of cake," he says, "once you teach them how to use those little bottles."*

## Help Us Celebrate!

In 1997, the American Horticultural Society will celebrate its 75th anniversary. In honor of the event, we will be recognizing America's 75 best gardening books, 75 best plants, and 75 best gardening events. We want our members' input! The deadline for event nominations is January 1 (you can fax us at (703) 768-7533, or e-mail us at [garden@ahs.org](mailto:garden@ahs.org)); the deadline for nominations in the other categories is March 1. You can nominate as many as you like in each category. See the November 1995 News Edition for details.





# GARDENERS' INFORMATION SERVICE

**Q:** *What is the origin of the common name of dead nettles?*

—R.S., Niagara Falls, Ontario

**A:** Dead nettles (*Lamium album*) are not members of the nettle family (Urticaceae) but of the mint family (Lamiaceae). The word "nettle" usually refers to a group of plants whose toothed leaves are covered with hairs that secrete histamine, which causes a stinging or burning sensation when it comes in contact with skin. Mint family members have aromatic foliage, two-lipped flowers, and square stems. What the two families have in common is that many members of both have a history of medicinal and culinary uses.

In *The History and Folklore of North American Wildflowers*, author Timothy Coffey explains that *L. album* is called dead nettle because its foliage resembles that of stinging nettle (*Urtica dioica*), but lacks the stinging hairs. Other common names for *L. album* have included bee nettle, blind nettle, day nettle, deaf nettle, dog nettle, dumb nettle, snake flower, suck bottle, and white archangel.

**Q:** *I got a very nice balled-and-burlapped yellowwood on sale at a local nursery this fall. The man who dug it up for me said that as long as I cut away any burlap above the ground, I could leave the wire basket in place around the root ball. Since then, a friend told me that the wire basket will damage the roots. Who is right?*

—K.E., Dawson Springs, Kentucky

**A:** A wire basket supports the root ball of field-grown nursery stock and allows it to be lifted without undue stress to the trunk. According to the September/October newsletter of the Virginia Nurserymen's Association, it can take as long as 20 years for the wire to decompose. But a recent study by Edward Gilman of the University of Florida indicated that the spacing of wire in the basket allows ample room for roots to expand. He examined trees planted 12 years ago and

found no evidence that the wire was affecting the root system. But Nina Bassuk, program leader of Cornell University's Urban Horticulture Institute, says a basket could interfere with a tree's buttress roots—those large roots that flare out from a tree's trunk. She recommends removing the top one-third of the basket with wire cutters once the newly planted tree is in place and stable. You might still be able to remove enough soil to perform this operation.

**Q:** *I recently purchased a five-foot-tall southern magnolia. I live in central Illinois (USDA Zone 5) and have planted the tree in a southern exposure. I understand that the first winter will be important to the survival of the tree. I mulched it heavily around the first of December and plan to cover it with heavy-gauge clear plastic before the temperature drops below 10 degrees. Can you make any other suggestions?*

—J.M., via Internet

**A:** For overwintering newly established trees, we suggest special attention to two factors: water and protection from drying winds. Most plants need moisture even in the coldest winter. In fact, extremely cold weather can stress plants by locking up all available moisture in snow and ice. The mulch will help, but don't let it pile up around the trunk and water the tree if your area has a long dry period.

Wrapping the tree with plastic may cause a heat build-up that will burn and dry the plant's leaves, and using clear plastic in your southern exposure could increase the possibility of sunscald. You are right in trying to protect the tree from wind, and it should also be protected from snowload.

Four years ago Joseph W. Hickman of Benton, Illinois, at the northern edge of USDA Zone 6, formed the Hardy Magnolia Grandiflora Society with some like-minded individuals. Hickman tells us he has access to fiberglass tubing, three feet in diameter, that is used to conduct fresh and exhaust air in coal mines. He cuts these into three- and four-foot

lengths that he slips over his trees for the first few years. "Any sort of structure of wire and burlap and/or plastic would serve the same purpose," he says. "We have a feeling that if we can get a trunk the size of a quarter that the tree has a better chance of surviving severe winters."

You don't say if you have a named cultivar. Some, such as 'Edith Bogue', are known for their cold hardiness. Hickman and others in his group are propagating selections of *M. grandiflora* and testing their cold hardiness. Others that you may find in the trade, should your first effort fail, include 'Charles Dickens', 'Majestic Beauty', 'Timeless Beauty', 'Simpson', and 'Victoria'. "It is expected that we will continue to find *M. grandiflora* trees of merit, which will aid us in moving this tree north of its natural habitat," he says. "We hope that you will encourage your readers to write to me if they know of trees flourishing north of the Mason-Dixon line." Write Joseph W. Hickman, 1407 North DuQuoin Road, P.O. Box 396, Benton, IL 62812-0396.

**Q:** *My planting of hyacinth beans was a smashing success. The vines were covered with magenta flowers, and I had an abundance of purple pods still clinging to the vines well into the fall. Are the beans edible?* —F.S., Hickory, North Carolina

**A:** In North America the hyacinth bean (*Dolichos lablab*, syn. *Lablab purpureus*), also known as lablab bean and bonavist bean, is grown primarily as an annual ornamental vine because it is only reliably hardy south of Zone 9. It normally grows about 10 feet tall, but can reach 30.

In the tropics, however, it is widely cultivated for its edible pods and seeds. American Horticultural Society member Fran Bull uses the pods—picked when still under two inches long—to add color to salads. The beans inside, however, can be too strong for American palates. It is recommended that they be cooked in two or more changes of water.

—Neil Pelletier, Director  
Gardeners' Information Service







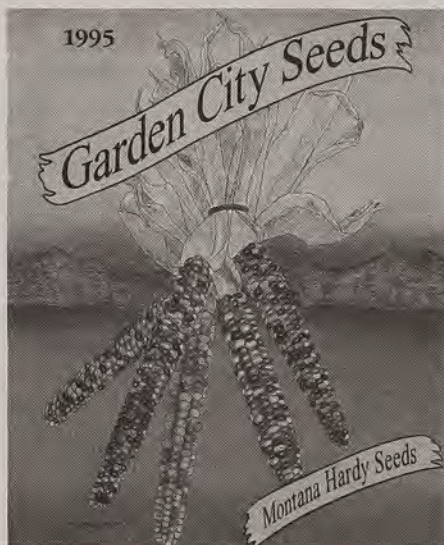
# MAIL-ORDER EXPLORER

## Short-Season Specialists

For 14 years, Garden City Seeds, a small cooperative seed company based in Hamilton, Montana, has catered to a loyal following of vegetable gardeners in areas with short growing seasons. The company got its start as a fundraising venture for a nonprofit educational organization called the Down Home Project, selling repackaged seeds purchased from larger companies. But over the years the company has evolved into a regional source for heirloom and open-pollinated vegetable varieties, some of which are trialed and grown in the company's own organically farmed fields.

In November 1994, John Schneeberger and his wife, Karen Coombs, who had been involved with Garden City since its inception in 1982, purchased the company from the Down Home Project. They made Garden City a for-profit company and hired John Navazio, who had recently finished his doctorate in plant breeding at the University of Wisconsin, to direct an ambitious breeding program. Navazio's goal is to develop a line of vegetables that will retain the flavor and nutritional value of heirloom vegetables while incorporating vigor, disease resistance, and other desirable qualities associated with hybrids.

Navazio brings to Garden City both an extensive knowledge of classical breeding techniques and practical experience. As a truck farmer in Maine in the 1980s, Navazio realized "what a chasm there was between the type of seeds available to large-scale vegetable growers and what was needed by small-scale specialty growers and homeowners. Large seed companies were breeding vegetables with processing and long-distance trucking in mind," he says, "rather than for characteristics like flavor and texture." He decided no one was working in the middle ground between heirloom varieties and hybrids and went to graduate school "determined to do what it appeared no one else was doing."



Chris Blanchard, garden manager for the Heritage Farm headquarters of Seed Savers Exchange, the Decorah, Iowa, company founded by Kent Whealy to preserve genetic diversity in vegetables, calls Navazio "fairly unusual in that he's a generalist in a field where people are known for their specialties. He also came up through the plant breeding ranks in a way very few people have, which I think will really make a small company like Garden City work."

Henry Munger, professor emeritus of plant breeding at Cornell University in Ithaca, New York, says Navazio is working with germplasm from Cornell's program, including a winter squash with high vitamin content and exceptionally good texture and flavor. Munger says larger seed companies looked at the squash, but decided it didn't merit attention because "it doesn't look any different" from other winter squash. "I think there is a real place for a company like this—I think they perform a valuable service that other companies don't," says Munger. Named 'Jade A', the squash will be listed in Garden City's 1996 catalog.

Another new offering for 1996 is a carrot called 'Dragon' that is purple with an orange core. Erik Sorenson, an agent with the Washington State University Coopera-

tive Extension Service in Pasco who conducts yearly trials of carrot varieties, says the carrot—derived from an Asian selection called 'Ping Ding'—has performed well in taste tests.

Because Navazio has only been working with Garden City for a little over a year, his first selections weren't available until this year. But regular customers rave about the heirloom mainstays and organic gardening products that have been offered all along. LeAnn Zodrow, a part-time switchboard operator in Princeton, Wisconsin, was impressed by the way the vegetables withstood a hotter-than-normal summer last year. "The heirloom plants stood up against the heat a lot better than the traditional varieties and hybrids." Among the successes for Zodrow have been 'Jacob's Cattle' dry bush beans, 'Scarlet Emperor' runner beans, Thompson broccoli, and Brunswick cabbage.

Marilyn McIntyre, who lives at an elevation of 3,000 feet in Grouse Creek, Idaho, has been buying seeds from Garden City for about eight years. "For me, their seeds are as closely acclimated as they can be," she says. "I really like the 'Red Russian' kale, and I've had great luck with tomatillos, which can handle the cool weather at the beginning of the growing season."

Destine Hoover of Cheyenne, Wyoming, a 16-year-old who last year won an outstanding gardener award from Stokes Seed Company, has been growing vegetables for market for three years in a 4,000-square-foot, hand-dug garden. Of Garden City she says: "Their seeds are acclimated to conditions here, where it can be minus 30 degrees in winter and we can get hailstorms in summer." Hoover especially likes a dark green summer squash called 'Zapalitto del Tronko' that has golden flesh with a texture that resembles avocado, and 'Chioggia' beet, which has red and white alternating rings within a scarlet skin.

—David J. Ellis  
Assistant Editor

To receive a Garden City Seeds catalog, send \$1 to Garden City Seeds, 778 Highway 93 North, Hamilton, MT 59840.





# 1996 SEED CATALOG

**T**he descriptions in this catalog have a few assumptions in common. Unless otherwise stated, plants grown from these seeds will do best in well-aerated soil with full sun. Seeds should be covered unless the contrary is indicated. The best temperature for warm conditioning is about 70 degrees; cold conditioning should be done at 40 degrees. "Warm soil" is that with a temperature of at least 70 degrees. USDA zone numbers tend to be conservative; plants may grow outside the ranges specified.

## ANNUALS

1. *Abelmoscus moschatus*. Musk mallow, tropic jewel hibiscus. Height: 18 inches. A dense mounded plant with 3- to 5-inch fingerlike lobed leaves and 3- to 4-inch scarlet flowers with white centers. Blooms midsummer to frost. Performs well in hot summers. Seeds germinate best at 75–80 degrees, so start indoors or wait until soil temperatures are above 70 degrees.

2. *Amaranthus caudatus*. Love-lies-bleeding, tassel flower. Height: 3–5 feet. Vivid red tassel-like flowers last for weeks. The young leaves and seeds are edible. Sow on surface of warm soil.

3. *A. cruentus*. Purple amaranth. Donor says it's a Rodale multiflora. Height: to 5 feet. Features spiky green to maroon flowers drooping from terminal panicle. Used by Native Americans as a food plant. Can be grown like corn, but more drought tolerant. May need staking. For culture, see *A. caudatus*, above.

4. *A. hybridus* var. *erythrostachys*. Prince's-feather. Height: 5 feet. Thick stalks bear narrow, foot-long leaves and upright flower spikes in midsummer. Both flowers and foliage are red. For culture, see *A. caudatus*, above.

5. *Antirrhinum majus* "Tetraploid Mix". Common snapdragon cultivar. Height: 2½ feet. Narrow, dark green leaves on erect stems and showy, almost orchidlike flowers in a variety of colors. Blooms midsummer to frost. Do not cover seeds.



6. *Asclepias curassavica*. Bloodflower. Height: to 3½ feet. A tropical milkweed. Shrubby with narrow opposing leaves, it bears orange-red flowers with yellow centers in late summer and fall. Food source for butterfly larvae. Sow outdoors after danger of frost has passed.

7. *Briza maxima*. Large quaking grass. Height: 1–2 feet. Loosely tufted, slender ornamental grass. Green to silvery spikes droop from terminal inflorescence and wave in a breeze. Attractive in dried arrangements. Sow seeds one-eighth inch deep 2–4 weeks before last frost.

8. *Calendula officinalis*. Pot marigold, calendula. Height: 1–2 feet. This Mediterranean native has thick, oblong leaves and solitary, showy, pale yellow to orange flowers up to 4 inches across. Blooms prolifically from May to September, but can lag during hot summers. Dried flower heads were once used medicinally and to flavor soups and stews.

9. *Catharanthus roseus* "Tropicana Rose". Madagascar periwinkle cultivar. Height: 14–15 inches. Two-inch-wide rose-colored flowers bloom above glossy bright green foliage. Tolerates full sun to part shade in moist, well-aerated soil.

10. *Celosia cristata*. Cockscomb. Mixture of 'Flamingo Feather' and 'Pink Candle' cultivars. Height: 2–3 feet. Mixture of plume-type cockscomb cultivars includes lavender to pink and bi-colored flowers that bloom for up to 8 weeks in midsummer. Makes ideal cut flowers and everlasting. Tolerates drought. Keep temperature above 70 degrees during germination and don't transplant or sow outside until temperatures are above 60 degrees.

11. *Cleome spinosa*. Spider flower. Height: 4 feet. Produces off-white flowers with "spidery" stamens and seed pods. Compound leaves have spines at the base. In hot sunny weather the petals will curl during the day and open fully in the evening. Grows well in sun or part shade and prefers dry soil. Do not cover seeds.

12. *C. spinosa* "Violet Queen". Spider flower. Height: 4 feet. Violet flowers are 5–6 inches across.

13. *Cleome* spp. Spider flower species. Height: 3–5 feet. Donor unsure of species. Flowers are white, pink, and purple. For culture, see *C. spinosa*.

14. *Cleome* sp. Spider flower species. Height: 4–7 feet. Donor unsure of species. Flowers are white and pink. Seeds of parent plants collected at Monticello. For culture, see *C. spinosa*.

15. *Cnicus benedictus*. Blessed thistle variety. Height: 2–3 feet. Herb with Mediterranean and Middle East origins. Species bears yellow thistlelike flower heads, but donor says this variety has purple flowers. Of interest to collectors of biblical plants. Sow outdoors in early spring and thin seedlings to 1 foot apart. Self-sows once established.

16. *Consolida ambigua*. Rocket larkspur. Height: 1–3 feet. Pink, white, and dark blue flowers bloom on slender spikes from spring through summer. Keep roots cool by planting in light, rich soil and mulching around plants. Keep soil moist. Extremely hot weather shortens blooming season. Start indoors in early spring or sow directly outdoors.

17. *C. regalis* 'Blue Cloud'. Larkspur. Height: 3–4 feet. Resembles baby's-breath, with a bushy cloud of half-inch pale blue flowers. For cultural information, see *C. ambigua*.

18. *Coreopsis tinctoria*. Calliopsis, plains coreopsis. Height: to 4 feet. Fine, narrow-leaved stems bear flowers up to 2 inches across. These have yellow rays and purple-brown centers. Very elegant. Tolerates poor soils. Sow in warm soil.

19. *Coreopsis* spp. Mix of coreopsis species. Height: 12–18 inches. Flowers are deep maroon, or yellow with maroon centers. Bushy plants with finely divided foliage. Deadheading encourages additional blooming. Keep seeds at 70 degrees during germination.

20. *Cosmos sulphureus* 'Sunny Red'. Yellow cosmos cultivar. Height: 3–4 feet. A compact plant with feathery dark green foliage that bears bright orange-red double flowers from early summer to frost. Easy to germinate and self-sows.

21. *Datura innoxia*. Downy thorn-apple, angel's trumpet. Height: 3 feet. Huge, dark leaves on sprawling stems. White, sometimes pinkish trumpet-shaped flowers up to 8 inches long are fragrant and open at night. Pinching off spent flowers prolongs the blooming season, but spiky seed pods add late season interest. **Caution: All parts of plant are poisonous.** Sow indoors in late winter and transplant outdoors after last frost, or sow outdoors in warm soil.

22. *D. meteloides*. Angel's trumpet. Height: 2–4 feet. A lush, exotic, sprawling plant with large dark green leaves. Intensely fragrant 6- to 8-inch-long trumpet-shaped white flowers open in early evening, blooming midsummer to frost. Seeds of *D. metel* and subspecies of *D. innoxia* are often labeled under this name. True *D. meteloides* flowers are flushed with lavender. **Caution: All parts of plant are poisonous.** For culture, see *D. innoxia*.

23. *Dracocephalum moldavicum*. Dragonhead. Height: 1–2 feet. Fragrant, branching annual with blue flowers in whorls. The intense citrus scent of the foliage is retained in dried arrangements.

24. *Gaillardia pulchella*. Indian blanket, annual gaillardia. Height: 1½–2 feet. Short-lived perennial when given winter protection. Raylike



red flowers are tipped with yellow. Oblong, gently toothed or serrated leaves. Descended from wild plants native to the American West. Drought resistant. Germinates in 2–3 weeks under light at 70 degrees.

25. *Gomphrena globosa*. Globe amaranth. Height: 1–2 feet. Low-growing, rounded growth habit with cloverlike foliage. Bears spiky magenta flower balls on slender green stems from early summer to frost. Flowers are used for fresh and dried arrangements. Heat and drought tolerant.

26. *G. globosa*. Globe amaranth variety. Height: 1–2 feet. Similar to species, but has either white or bright pink-purple flowers.

27. *Helianthus annuus* 'Aztec Gold'. Sunflower hybrid. Height: to 6½ feet. Large, daisylike flowers up to 11 inches across yield plump, edible sunflower seeds for snacks or bird food. Grow on the north or west side of the garden to avoid shading lower-growing plants. Sow seeds outdoors after danger of frost has passed. Limited quantity available.

28. *Iberis umbellata*. Globe candytuft. Height: 8–16 inches. White to deep purple flower heads begin blooming in late spring. Excellent for the border or as a cut flower. Prolong bloom by successive sowings and by deadheading flowers.

29. *Impatiens* sp. Impatiens. Height: 8–12 inches. Pink and pale lavender flowers. Blooms mid-summer to frost. Needs part to moderate shade and moist, well-aerated soil.

30. *Lunaria annua*. Money plant. Height: 3 feet. Flowers are purple or white and fragrant. Fruit is silvery, papery, and coin-shaped. Useful for dried arrangements. Full sun or light shade. Biennial but will reseed.

31. *L. annua* 'Variegata'. Money plant cultivar. Height: 2–3 feet. Similar to species, but has pink flowers and variegated leaves with creamy white margins.

32. *Lupinus densiflorus*. Gully lupine. Height: to 3 feet. Bushy with palmate leaves and erect racemes of yellow flowers. Tolerates part sun; likes cool, moist conditions. Soak seeds overnight in warm water or scarify them.

33. *L. hartwegii*. Lupine. Height: 2–4 feet. Spike-borne flowers are usually blue, but may be rose to pink; blooms July to October. A native of Mexico, it prefers loamy, mildly acidic soils that drain well. Soak seeds in lukewarm water for 24 hours and nick seed coats before germinating outside.

34. *Melampodium paludosum*. Melampodium. Height: to 3 feet. A perennial in the Southwest, bears bright yellow starlike flowers on hairy foliage. Blooms frost to frost and is heat tolerant. Start indoors in early spring.

35. *Mirabilis jalapa*. Four-o'clock. Height: to 3 feet. Fast-growing, bushy with pointed leaves resembling mint. Covered in summer with fragrant, tubular flowers in white, red, yellow, and pink. Some are striped. Tolerates some shade and is not particular about soil. Sow in warm soil. Will self-sow in warm areas. Its tubers can be dug in early fall and overwintered.

36. *Nicandra physalodes*. Shoo-fly plant. Height: 3 feet. A loose mass of large oval leaves

and violet-blue, 1-inch flowers in July and August. Fruits resemble those of the Chinese lantern and are useful for arrangements. Sap is said to be insecticidal.

37. *Nicotiana glauca*. Tobacco flower. Height: 5 feet. A bold, basal rosette of bright green leaves up to 2 feet long, from which arises a thick stalk, topped in midsummer by a clump of long, tubular, fragrant white flowers. Tolerates some shade. South of Zone 7, may be grown as a tender perennial or biennial. Do not cover seeds.

38. *N. glauca* 'Sensation Mixed'. Tobacco flower cultivar. Height: 4–5 feet. Similar to the species but flowering in purple, pink, and white.

39. *Nigella damascena*. Love-in-a-mist, wild fennel. Height: to 1½ feet. Of Mediterranean origin, this low-growing plant features blue, pink, or white starlike flowers nestled in a mist of fine, needlelike leaves. Inch-long egg-shaped seed capsules add interest in fall and in dried arrangements. Flowers for 4–6 weeks beginning in July. Self-sows.

40. *N. hispanica* 'Curiosity'. Height: 1–1½ feet. Deep blue petals radiate from a central core of green sepals that resemble a jester's hat. Feathery foliage. Self-sows.

41. *Nolana paradoxa*. Chilean bellflower. Height: 3–8 inches. Bright blue, prolifically blooming flowers with prominent dark veining. Tolerant of drought and poor, sandy or gravelly soils. Sow in peat pots 4 to 6 weeks before last frost. Germinates in 7 to 14 days.

42. *Papaver rhoeas*. Corn poppy, Shirley poppy. Height: 2 feet. Cup-shaped flowers have silky, crimson petals with dark centers. Blooms all spring and early summer. Self-sows.

43. *P. rhoeas*. Corn poppy, Shirley poppy. Height: 3 feet. Cup-shaped flowers in range of pastel colors. Self-sows.

44. *P. somniferum*. Opium poppy. Height: 1–4 feet. Pink double flowers bloom in summer above 3- to 5-inch serrated leaves. Tolerates part sun. Sow indoors in early spring after dry storage for 3 months at 70 degrees, transplanting before taproot forms, or sow directly in ground before last frost.

45. *P. somniferum*. Opium poppy. Height: to 2 feet. Donor calls this selection 'Queen's Poppy' and says it is derived from an English cottage garden variety. Four-inch, sometimes double flowers are pink with a white cross in the center of the petals rather than standard black of opium poppy.

46. *P. somniferum*. Opium poppy. Height: to 2 feet. Donor calls this selection 'Queen's Poppy' and says it is derived from an English cottage garden variety. Four-inch, sometimes double flowers are pink with a white cross in the center of the petals rather than standard black of opium poppy.

47. *Papaver* spp. Poppy. Donor unsure of species. Height: to 3½ feet. Multiple ruffled magenta blooms attract bees. Birds like edible seeds, which can also be used for cooking.

48. *Papaver* spp. Poppy. Mixture of poppy varieties in various colors. Sow outside in cool soil after danger of frost has passed.

49. *Pelargonium alchemilloides*. Geranium species. Height: 1½ feet. A slender, erect plant with pubescent, deeply-lobed, and serrated leaves

zoned with red. Flowers are white with rose-colored veins. Prefers shade. Scarify seeds before sowing outdoors after danger of frost has passed.

50. *P. alternans*. Geranium species. Height: 1 foot. Shrubby, low-growing plant has white flowers with streaks of red on upper petals.

51. *P. australe*. Geranium species. Height: to 1 foot. Softly hairy geranium with faintly scented, rounded, shallowly lobed leaves and white, red, or rose-spotted flowers, sometimes with pink venation.

52. *P. elongatum*. Geranium species. Height: to 1 foot. Has bright green foliage highlighted by purple zones and bears white- to cream-colored flowers all summer. Low-spreading plant that is short-lived and produces lots of seeds. Germinate indoors in early spring or sow directly outdoors.

53. *P. × hortorum* 'Cameo'. Zonal geranium. Height: 12–15 inches. Bears deep salmon-colored blossoms all summer on densely flowering umbels. Does best in areas where nights are cool. Cover seeds lightly and germinate in warm soil.

54. *P. × hortorum* 'Glamour Rose Pink'. Zonal geranium. Height: 12–15 inches. Characteristics and growth requirements similar to 'Cameo', but flowers are deep rose pink with a white eye.

55. *P. odoratissimum*. Apple-scented geranium. Height: to 1½ feet. Has sprawling stems and kidney-shaped, apple-scented foliage. Flowers are white. Plant used as a source of geranium oil.

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56. *P. papilionaceum*. Geranium species. Height: to 3 feet. Larger upper petals are rose colored marked with red, lower are white. Has rounded pubescent leaves and hairy stems. Foliage can have citrus scent. Tolerates part shade. Start indoors in early spring for outdoor planting. Soak seeds overnight in lukewarm water and keep soil warm until germination occurs.

57. *P. peltatum*. Ivy-leaf geranium sports. Height: to 1 foot. Distinguished by bright green, ivylike leaves and a trailing or climbing habit. Single or double flowers range from white to lavender. The two upper petals are blotched or striped. Ideal for hanging baskets.

58. *P. quinquelobatum*. Geranium species. Height: 6–12 inches. Prostrate habit and sharply lobed leaves with a narrow brown zone and spidery white, beige, or grayish mauve flowers.

59. *P. ribifolium*. Geranium species. Height: to 3 feet. Bears small white flowers on hairy stems that become woody at the base. A rugged plant that prefers moist but not wet soil. Sow seeds indoors in early spring or directly outdoors.

60. *Petunia × hybrida*. Petunia cultivar. Donor unsure of cultivar. Height: 1 foot. Rugged, compact plants bear red and purple flowers, some bicolor. Full or part sun. Sow indoors 8 weeks before last frost. Cover seeds very lightly, or just press them into the starting medium.

61. *Polygonum orientale*. Prince's feather, kiss-me-over-the-garden-gate. Height: to 6 feet. A native of Asia and Australia naturalized in the U.S.

**SORRY, NOT AVAILABLE**

46. *P. somniferum*. Opium poppy. Height: to 2 feet. Donor calls this selection 'Queen's Poppy' and says it is derived from an English cottage garden variety. Four-inch, sometimes double flowers are pink with a white cross in the center of the petals rather than standard black of opium poppy.



Bears bright magenta flowers on dense, generally drooping spikes up to 3 inches long. An erect plant, with broad ovate leaves that clasp to the stem. Tolerates part shade.

62. *Portulaca grandiflora*. Moss rose. Height: to 6 inches. A low-growing, somewhat prostrate plant with fleshy, narrow leaves and stems and rosely flowers in a wide range of colors from white to red. Blooms early summer to frost and tolerates full sun and sandy or dry soils. Good for rock garden, ground cover, or border. Germinate seed indoors at 70 degrees, or sow outside where the plants are to grow.

63. *Salpiglossis* sp. Painted tongue. Donor unsure of species. Height: to 3 feet. Native of Chile bears apricot-orange trumpet-shaped flowers all summer in cooler climates. May require staking. Attracts butterflies. Sow outdoors after danger of frost has passed, or start indoors for earlier bloom. Does best in rich, well-prepared soil.

64. *Salvia* spp. *Salvia* mix. Height: 2-4 feet. A mixture of white, pink, coral, red, blue, lavender, and purple salvias that bloom all summer. Some have aromatic foliage. Start indoors in late winter or sow outdoors in spring.

65. *Scabiosa stellata*. Starry scabiosa. Height: 1-1 1/2 feet. Produces compound, hairy leaves and globe-shaped, yellow-white to lilac flower heads about an inch across.

66. *Senecio cineraria*. Dusty-miller. Height: 2-3 feet. The yellow or cream flower heads are several inches across but the plant is grown primarily for its white, woolly leaves. Can be sheared to prevent legginess. Needs cool temperatures (55-60 degrees) for germination.

67. *Silene armeria*. Sweet William catchfly. Height: 1-2 feet. Bushy annual or biennial that self-sows and acts like a perennial. Brilliant lavender-to-pink flowers with notched petals bloom in compact clusters above mostly basal leaves. Heat and drought tolerant. Do not cover seeds. Zone 4-8.

68. *Tagetes minuta*. Muster-John-Henry. Height: 3 feet. Late-blooming marigold that bears small, fragrant yellow flower heads 6 months after sowing. Said to deter nematodes and attract beneficial insects. Self-sows. Start indoors in late winter for late summer bloom.

69. *T. patula* 'Sophia Queen', 'Sparky', 'Boy Yellow', and 'Boy Spry'. French marigold cultivars. 'Sophia Queen' grows to 1 foot and has yellow flowers with mahogany flecks. 'Sparky' grows to 1 foot with abundant bicolored double flowers in orange and yellow. 'Boy Yellow' is a dwarf yellow form, growing to 8 inches. 'Boy Spry', another dwarf, has mahogany outer petals with a yellow crest.

70. *Thymophylla tenuiloba* (syn. *Dyssodia tenuiloba*). Dahlberg daisy, golden fleece. Height: 8-15 inches. Half-inch-wide, yellow daisylike flowers highlight finely dissected foliage from midsummer to fall. Native to Texas and Mexico, it is somewhat drought resistant and useful in rock gardens or between stepping stones. Self-sows prolifically.

71. *Zinnia angustifolia* 'White Star'. Mexican zinnia cultivar. Height: 1-1 1/2 feet. A narrow-leaved species that bears white daisylike flowers with yellow centers.

## GUIDES TO GERMINATION

For those who want to learn more about collecting and germinating seeds, here is a list of references we have found useful in preparing the seed catalog. These books are available at a discount through the AHS book program. For further information, contact Barbara Catherwood at (800) 777-7931.

♦ *Collecting, Processing and Germinating Seeds of Wildland Plants*. James A. Young and Cheryl G. Young. Timber Press, Portland, Oregon. 1986.

♦ *From Seed to Bloom: How to Grow Over 500 Annuals, Perennials and Herbs*. Eileen Powell. Storey Communications, Inc., Pownal, Vermont. 1995.

♦ *Garden Flowers from Seed*. Christopher Lloyd and Graham Rice. Timber Press, Portland, Oregon. 1994.

♦ *Growing & Propagating Showy Native Woody Plants*. Richard E. Bir. The University of North Carolina Press, Chapel Hill. 1992.

♦ *Manual of Herbaceous Ornamental Plants*. Steven M. Still. Stipes Publishing Co., Champaign, Illinois. 1994.

♦ *Manual of Woody Landscape Plants*. Michael A. Dirr. Stipes Publishing Co., Champaign, Illinois. 1990.

♦ *The New Seed Starters Handbook*. Nancy Bubel. Rodale Press, Emmaus, Pennsylvania. 1988.

♦ *Saving Seeds: The Gardener's Guide to Growing and Storing Vegetable and Flower Seeds*. Marc Rogers. Storey Communications, Inc., Pownal, Vermont. 1990.

♦ *Seeds of Woody Plants in North America*. James A. Young and Cheryl G. Young. Dioscorides Press, Portland, Oregon. 1992.

If you plan to germinate a lot of different seeds, it would be worth your while to get a copy of a book we have listed for the last two years—Norman C. Deno's *Seed Germination Theory and Practice*. Deno, emeritus professor of chemistry at Pennsylvania State University, self-published this handbook, in which he reports the results of his exhaustive experiments germinating seeds from about 2,500 different plant species. To get a copy, send \$20, payable to Norman C. Deno, to 139 Lenor Drive, State College, PA 16801.

## PERENNIALS

72. *Abelmoschus manihot*. Sunset hibiscus. Height: 5-6 feet. Tender perennial grown as an annual in temperate regions. Large ruffled yellow flowers with a purplish center bloom in late summer. Easy to germinate. Zone 7-10.

73. *Achillea filipendulina* 'Coronation Gold'. Fernleaf yarrow. Height: 3 feet. Low-growing yarrow with small, flat, dense heads of yellow flowers from late spring to midsummer. Flower heads retain color for dried arrangements if cut before pollen development. Heat-tolerant plant that prefers dry soil and full sun. Zone 4-8.

74. *A. millefolium*. Common yarrow variety. Height: 2-3 feet. Flat heads of deep pink flowers that fade to cream bloom above feathery dark green leaves. Zone 3-10.

75. *A. millefolium* 'Summer Pastels'. Galaxy hybrid. Height: 2 feet. 1990 All-America Selections winner that flowers in a variety of colors including apricot, salmon, scarlet, lilac, cream, orange, gold, and mauve. Used as border plants or in dried and fresh arrangements. Best in full sun and dry soil. Zone 3-9.

76. *Agalinis tenuifolia* var. *macrophylla* (syn. *A. bess*). Height: 1-2 feet. Flat heads of yellow flowers with fernlike leaves. Sow outside in fall. Zone 4-8.

77. *Alcea rosea*. Common hollyhock. Height: 5-6 feet. Spikes of single deep pink flowers 2-4 inches across. Has shallowly lobed, alternate leaves. May require staking. Best for the back of a border or against a wall or fence. All hollyhocks germinate best in cool temperatures (55-60 degrees). Biennial. Zone 3-9.

78. *A. rosea*. Common hollyhock. Height: 10 feet. Spikes of single pale pink to white flowers. Requires staking. Biennial. Zone 3-9.

79. *A. rosea*. Common hollyhock. Height: 8-10 feet. Light yellow blooms suffused with peach on wandlike terminal racemes. Requires staking. Biennial. Zone 3-9.

80. *A. rosea*. Common hollyhock. Height: 4-5 feet. A mixture of hollyhocks with white, pink, rose, and red flowers. May require staking. Biennial. Zone 3-9.

81. *A. rosea* 'Indian Springs Hybrids'. Common hollyhock hybrids. Height: 4-6 feet. Light to medium pink flowers bloom in July. May require staking. Biennial. Zone 3-9.

82. *A. rosea* 'Nigra'. Common hollyhock hybrid. Height: 5 feet. Dark maroon flowers bloom June to August. Zone 3-9.

83. *A. rugosa*. Hollyhock. Height: to 6 feet. Similar to *A. rosea*, but with bushier habit. Yellow flowers bloom in early summer. Biennial. Plants grown from seeds sown indoors in January may bloom first year.

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84. *Alcea* sp. Hollyhock. Donor unsure of species. Height: 6–8 feet. Spikes of single, mixed-color flowers 2–3 inches across. Requires staking. Plant in rich soil. Zone 3–9.

85. *Allium aflatumense*. Persian onion. Height: 3 feet. Erect plant with 4-inch-wide umbel of star-shaped lilac flowers on terminal scapes. Blooms in late spring. Ideal for border or cut flowers. Has straplike basal foliage. Zone 4–7.

86. *A. caeruleum*. Allium. Height: 1½–2 feet. Numerous 1- to 2-inch-wide, sky blue flower heads bloom in June and July. Bulblets sometimes borne in umbels after flowering. Sow outside in fall for spring germination. Zone 6–8.

87. *A. cernuum*. Nodding onion. Height: 1–2 feet. Typical onion leaves and loose nodding umbels of lilac to pink flowers. Tolerates a variety of growing conditions. Zone 4–8.

88. *Alyssoides graeca*. Bladderpod. Height: 1–2 feet. Herb native to mountains of central Europe. Bright mustard yellow flowers bloom April to June. Resembles alyssum, but has larger flowers and produces decorative, bloated, bladderlike seed pods. Zone 5–8.

89. *Amsonia tabernaemontana*. Blue star, willow amsonia. Height: 2–3 feet. This clumping southeastern native can grow to 3 feet wide with terminal clusters of star-shaped, steel blue flow-

ers that bloom from late spring to early summer. Narrow, gently tapering foliage turns yellow in fall and lasts till frost. Prefers full sun, infertile soil. Cold treat seeds for 2 months. Zone 3–9.

90. *Anemone* spp. Windflower species. Height: ½–1½ feet. Seeds collected from *A. narcissiflora* and *A. nemorosa*. *A. nemorosa* has white flowers, sometimes reddish. *A. narcissiflora* has creamy white flowers occasionally flushed with purple. Compact plants with deeply lobed basal foliage flower in late spring and early summer. Both tolerate part shade and prefer rich soil of sand and loam. Store seeds in moist medium in refrigerator for 2–3 weeks before sowing. Can be sown outdoors after last frost or indoors in early spring. Zone 3–9.

91. *Angelica gigas*. Angelica. Height: 5–6 feet. This biennial or short-lived perennial herb has tan to burgundy flowers that bloom in July and August on 4- to 8-inch-wide umbels. The large leaves have heavily serrated edges and thick stems with a scent reminiscent of celery. Prefers part shade, especially in hot climates. The life of the plant can be prolonged by removing flowers before seeds form. Do not cover seeds; germinate at 70 degrees. Fresh seeds have higher viability. Zone 4–8.

92. *Anomatheca laxa*. Anomatheca. Height: 4–12 inches. Native to southern Africa, this is a tender cormous perennial in the iris family. Nar-

row sword-shaped basal leaves are held flat in a fanlike pattern. Multiple bright red orchidlike flowers bloom on a single, arching stem in late summer. Egg-shaped seed pods split to reveal red seeds. Prefers part shade. Sow outdoors. Takes about a year to flower from seed. Established plantings self-sow freely. Zone 8–10.

93. *Anthemis tinctoria*. Dyer's chamomile, golden marguerite. Height: 2–3 feet. Short-lived, bushy perennial with downy, fernlike, pungent foliage and daisylike yellow or gold flowers on tall stems. Used as a source of yellow fabric dyes and for medicinal purposes. Seeds germinate in 1–3 weeks at 70 degrees. Do not cover seeds. Zone 4–9.

94. *Aquilegia alpina*. Alpine columbine. Height: 1–2½ feet. Nodding bright blue or blue-and-white spring flowers with spreading sepals and short, hooked spurs bloom above clumps of blue-green basal foliage. In general, columbines prefer part shade and rich soil. For this species, donor suggests sowing seeds then cold treating for three weeks before germinating at 70 degrees. It's probably best to sow columbines outdoors in fall or early spring without covering the seeds. Zone 3–9.

95. *A. canadensis*. Canadian columbine. Height: 3–3½ feet. Five-petaled flower with spurs of vivid scarlet and yellow. Blooms in late spring to early summer. For culture, see *A. alpina*. Extended dry storage may improve germination. Zone 3–8.

96. *Aquilegia* spp. Mixed columbine species. Height: 1–3 feet. Mixed red, white, purple, blue, and yellow flowers in late spring to early summer. Zone 3–8.

97. *Arisaema dracontium* 'Green Dragon'. Jack-in-the-pulpit. Height: 16–20 inches. Light green spathe terminates in a curling upward projection that resembles a yellow whip. Green berries turn orange in autumn. Alternate cold and warm treatments. Zone 4–9.

98. *A. triphyllum*. Jack-in-the-pulpit. Height: 16–20 inches. Named for green or purple hood-like bracts (spathes), which are followed in autumn by bright red berries. Needs full or part sun and rich soil. Sow in fall. Zone 4–9.

99. *Asclepias incarnata*. Swamp milkweed. Height: to 3 feet. Erect, vase-shaped plant with long narrow leaves and clusters of vanilla-scented white to mauve flowers that bloom in mid- to late summer. Tolerates soggy soil. Food source for butterfly larvae. Cold treat then warm treat without covering. Zone 3–9.

100. *A. syriaca*. Common milkweed. Height: 3–4 feet. Tall, erect plant with narrow leaves up to 12 inches long. Flowers, which range from pink to purple and are slightly honey scented, bloom in late summer in the leaf axils. Good for attracting butterflies or for naturalizing. Sow outdoors in fall. Zone 3–8.

101. *A. tuberosa*. Butterfly weed. Height: 3 feet. Orange, occasionally red or yellow umbels bloom in late spring to midsummer. Attractive straplike leaves 2–6 inches long. Excellent for borders or meadow areas. Thrives in drier, infertile soils. Usually pest free. Zone 4–9.

102. *Baptisia australis*. False indigo. Height: 2–6 feet. Forms large clumps of cloverlike blue-



green leaves. In summer, long racemes of blue flowers emerge. Sow in late fall or in early spring. Spring-sown seeds should be scarified. Zone 4-9.

**103. *Belamcanda chinensis*.** Blackberry lily. Height: 1½-3 feet. Bulb produces orange-red, spotted flowers to 2 inches across. Semi-erect, sword-shaped leaves form a fan. Midsummer flowers are followed by fruit capsules that split to expose shiny black seeds good for dried arrangements. Prefers rich soil. Mulch in winter to prevent frost heaving. Zone 5-10.

**104. *Chasmanthium latifolium*.** Northern sea oats, wild oats. Height: to 3 feet. A clumping, warm-season grass with leaves like bamboo and flowers like oats. The flowers appear in August and turn copper in fall, then gray in winter. Does best in some shade. Native to streambanks, so ensure adequate moisture. Self-sows. Germination rate may be low because many flowers are sterile. Zone 5-9.

**105. *Chasmanthium* sp.** Sea oats. Height: 3 feet. Donor unsure of species. A clumping grass with narrow leaves and oatlike flowers that droop in 5- to 10-inch panicles. The flowers develop in late summer and turn bronze in fall. Useful for winter effect and in dried arrangements. For culture, see *C. latifolium*. Zone 5-9.

**106. *Chelone glabra*.** Turtlehead. Height: 2-6 feet. Clump former related to penstemons and similar in habit. Dark green, oval to lance-shaped leaves and white-to-pink bearded flowers in spikes. Prefers part shade with moist but well-aerated soil. Do not cover seeds. Zone 3-9.

**107. *Chrysopsis villosa*.** Golden aster. Height: 1-5 feet. Native to prairies of central and western North America. A bold, bushy plant with many-branched stems and hairy, lance-shaped leaves. Yellow radial-petaled flowers bloom in late summer and fall. Tolerates dry, sandy soil and exposed conditions. Zone 4-10.

**108. *Coreopsis grandiflora*.** Tickseed. Height: 2-3 feet. Donor unsure of variety. Native of southeastern and south central U.S. Large-toothed yellow flowers borne on slender green stems above narrow, dark green leaves. Deadhead to extend flowering. Prefers sandy soil. Do not cover seeds. Zone 6-9.

**109. *C. lanceolata*.** Lanceleaf coreopsis. Height: 2 feet. Similar to *C. grandiflora* but more graceful, with simple, lance-shaped leaves. Do not cover seeds. Zone 3-8.

**110. *Crambe cordifolia*.** Colewort. Height: to 6 feet. Width: to 4 feet. This stately plant forms a large, open inflorescence above a low mound of heart-shaped, deeply lobed leaves. The inflorescence, which resembles baby's-breath, is a multi-branched panicle of small white flowers that bloom from late spring to early summer. Germinate seeds at 40-45 degrees in moist medium. Seeds do not store well. Zone 5-9.

**111. *Delphinium* sp.** Larkspur. Height: 4-6 feet. Donor unsure of species. Blue, red, pink, white, violet, or yellow flowers bloom prolifically from early to midsummer on showy spikes above lobed leaves. May need staking. Young leaves and seeds of some delphiniums are toxic. Deadhead to induce reflowering. Prefers moist, slightly alkaline soil. Start indoors in late winter for flowers first year. Sow

outdoors in spring or summer for flowers in second year. Zone 3-7.

**112. *Dianthus barbatus*.** Sweet William. Height: 1-1½ feet. Abundant red, pink, white, and violet fringed flowers. Excellent for rock gardens. Usually performs as a short-lived perennial or biennial. If seed is sown in early summer, plants should flower the following year. Makes a long-lasting cut flower. Prefers rich, moist, well-aerated soil. Zone 4-10.

**113. *D. carthusianorum*.** Cluster-head pink. Height: 1½-2 feet. Red or purple-red flowers in terminal clusters borne on narrow stems bloom June to September. Narrow, blue-green leaves form loose, grasslike clump. Good for naturalizing in dry alkaline soil. Start indoors and transplant in spring or fall. Zone 5-10.

**114. *Dierama* sp.** Wandflower, angels' fishing rod. Height: 2-4 feet. A tender perennial grown as an annual or greenhouse plant in most of the U.S. Purple and pink tubular flowers bloom on arcing, wiry stems in summer. Grasslike foliage grows in clumps. Start indoors and transplant outdoors in warm soil. Zone 8-10.

## 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.

**115. *Digitalis lanata*.** Grecian foxglove. Height: 3 feet. Reddish brown stems are densely covered with lance-shaped leaves that are pubescent underneath. In late spring to early summer, one-sided racemes bear flowers that are gray to brown outside and white with brown veins inside. Most foxgloves are biennials or short-lived perennials and will die after flowering; however, their lifespans may be extended by removing flower heads before seed is set. If allowed to set seed, they self-sow readily. Seeds sown outdoors in early fall or started in a greenhouse during winter should flower the following summer. Do not cover seeds. Germination is rapid in warm soil. Zone 6-8.

**116. *D. lutea*.** Straw foxglove. Height: 2-3 feet. Abundant racemes of small, light yellow to white tubular flowers bloom from early summer to early fall. Foxgloves prefer part sun and rich soil. For culture, see *D. lanata*. Zone 3-8.

**117. *D. purpurea*.** Common foxglove. Height: 2-4 feet. Extremely showy, tube-shaped, terminal flowers are purple-pink with brown-spotted throats. Blooms early June to mid-July. Self-sows. For culture, see *D. lanata*. Zone 4-9.

**118. *D. purpurea* 'Foxy'.** Common foxglove cultivar. Height: 3-5 feet. This cultivar blooms the first year if plants are started indoors in late winter. Flowers are pink with yellow splotches. For culture, see *D. lanata*. Zone 4-9.

**119. *Digitalis* spp.** Foxglove mix. Height: 2 feet. Tube-shaped terminal flowers are either yellow or white. For culture, see *D. lanata*. Zone 4-9.

**120. *Echinacea purpurea*.** Purple coneflower. Height: 2-5 feet. Sturdy, coarse, hairy plant has leafy, branching stems and solitary, daisylike flowers up to 6 inches across. The drooping

petals vary from purple-pink to almost white, around a prickly, bronze-colored cone. Easy, low-maintenance plant. Zone 3-8.

**121. *Echinacea purpurea* 'White Swan'.** Purple coneflower cultivar. Height: 1½-2 feet. Similar to species but with white petals. Zone 3-8.

**122. *Echinacea* spp.** Purple coneflower varieties. Height: 2-3 feet. Mixed seeds from cultivars 'Bravado' (extra-large pink flowers) and 'White Lustre' (pure white flowers). Zone 3-8.

**123. *Echinops exaltatus*.** Globe thistle. Height: to 5 feet. Globular blue-to-gray spiky flower heads bloom for 6-8 weeks in summer. Tall upright plant with spiny, thistlelike leaves that are dark green above and white below. Tolerant of poor, dry soil. May take two years to bloom from seeds. Zone 4-9.

**124. *E. ritro*.** Small globe thistle. Height: 4 feet. Forms stands of sturdy stems with thistlelike leaves. Flowers are tightly grouped into large, spherical, compound heads. Low-maintenance plant. Excellent for cutting and dried arrangements. Zone 4-10.

**125. *Eryngium alpinum*.** Sea holly. Height: to 2½ feet. Each plant bears three to five cylindrical steel blue flower heads surrounded by slightly prickly, frilly bracts that resemble holly leaves. Blooms July to August. Steel blue stems rise from rosettes of glossy, leathery basal leaves. Excellent for dried arrangements. Eryngiums prefer dry, sandy, deep soil and are tolerant of drought and heat, but can be difficult to transplant once taproot forms. Cold treat to improve germination. Zone 5-8.

**126. *E. bourgatii*.** Mediterranean sea holly. Height: 1-2 feet. Small, dark blue midsummer flowers are surrounded by spiny bracts. Prickly, finely divided foliage is gray-green with white veins. Can be difficult to germinate. Sow in moist soil and warm treat, then cold treat, then germinate at 65-75 degrees, or sow outdoors in fall. For culture, see *E. alpinum*. Zone 5-8.

**127. *E. giganteum*.** Stout sea holly. Height: 4-6 feet. Biennial that self-seeds. Large, silver-green, spiny bracts form a collar around steel blue flower heads. Cold treat. For culture, see *E. alpinum*. Zone 4-8.

**128. *E. yuccifolium*.** Rattlesnake master. Height: 3-4 feet. Whitish, rounded flowers are 1 inch across. Taller branches are leafless with few bracts. Prefers dry, slightly acid soil and needs a generous topsoil depth to accommodate its long taproot. Performs well in both shady woodland edges and sunny prairie settings. Good for dried arrangements. Difficult to germinate. Cold treat for 2 months. Zone 4-8.

**129. *Eupatorium coelestinum*.** Mist flower, hardy ageratum. Height: 1-3 feet. Dense showy clusters of blue or violet flowers bloom from late summer to fall. Light green, opposite leaves surround pubescent, red-brown stems. Prefers moist sunny sites, especially beside pools or streams. Can be invasive. Cold treat in moist medium. Zone 5-10.

**130. *E. fistulosum*.** Joe-pye weed. Height: 6-10 feet. Forms clumps up to 3-4 feet wide. Domed heads of pale pink to red or lavender flowers bloom in clusters up to 18 inches across. Blooms in late summer or fall on hollow stems spotted



with purple. Long, lance-shaped leaves are arranged in whorls around the stem. Likes abundant moisture. Good for naturalizing. Can be pruned to stimulate lateral development or reduce height. May not bloom until second year. Sow outdoors in fall or cold treat and start indoors in early spring. Zone 4-9.

131. *E. purpureum*. Joe-pye weed. Height: to 10 feet. Open clusters of purplish flowers appear in late summer. Tolerates varied sun and soil conditions. Zone 4-9.

132. *Euphorbia lathyris*. Mole plant. Height: to 6 feet. A cosmopolitan weed said to repel moles. Narrow, leathery, gray-blue leaves encircle the lanky stem. Yellow to green flowers bloom in terminal cymes in late summer. All parts of the plant contain a milky sap that can cause a contact skin rash. Zone 5-9.

133. *Fibigia clypeata*. Fibigia. Height: 1-2 1/2 feet. An erect plant with oval to lance-shaped green or gray-green leaves covered with fine hairs. Yellow flowers are followed by flat, elliptical, often hairy fruits (siliques) that offer a decorative effect in summer. Prefers gravelly loam. Mediterranean native is useful in rock gardens. Difficult to germinate. Zone 4-8.

134. *Gaillardia aristata*. Blanket flower. Height: 2 feet. Single daisylike flowers are rich yellow with red centers and bloom all summer. Short-lived and tends to sprawl. Zone 3-9.

135. *G. × grandiflora*. Blanket flower. Height: 2-3 feet. Native to western U.S. Bears large red-and-yellow daisylike flowers summer and fall. Leaves are long, finely lobed, and hairy. Drought tolerant, but needs light soil. Zone 3-10.

136. *G. × grandiflora* 'Goblin'. Dwarf blanket flower. Height: 1-1 1/2 feet. Red daisylike flowers are edged with yellow and bloom all summer over long, narrow leaves. Forms compact mounds. Deadhead to prolong blooming. Tolerant of heat, drought, and poor soil. Zone 4-9.

137. *Gaillardia* sp. Blanket flower. Height: 3 feet. Donor unsure of species. Daisylike yellow and maroon flowers. Zone 3-9.

138. *Galtonia candicans*. Summer hyacinth. Height: 2-4 feet. Drooping, bell-shaped white flowers in a loose raceme are borne on stately stems above a clump of 2- to 3-foot-long basal leaves. This South African native flowers for about four weeks in midsummer; fragrant ornamental seed pods form by early fall. In colder climates, bulbs must be dug in fall and overwintered. Effective in large containers. Easy to germinate; self-sows. Zone 6-9.

139. *Gerbera jamesonii*. Barberton daisy. Height: 1-1 1/2 feet. Tropical perennial usually grown as annual north of Zone 8. Multicolored daisylike flowers rise on leafless stalks above a rosette of basal leaves. Needs moist soil and cool nighttime temperatures. Afternoon shade helps in areas with hot summers. Do not cover seeds to germinate. Zone 8-10.

140. *Helenium autumnale*. Sneezeweed. Height: 2 1/2-6 feet. Erect plant has elongated, alternate, serrated leaves and daisylike orange, yellow, and reddish brown flowers that bloom late summer to frost. Zone 3-8.

141. *Hemerocallis* varieties. Daylilies. Height:

1 1/2-3 1/2 feet. A mix of yellow, orange, pink, red, maroon, salmon, and bicolor flowers, which begin appearing about midsummer. Tolerates part shade. Can be sown outdoors in fall. Zone 4-9.

142. *Hesperis matronalis*. Sweet rocket. Height: 1-3 feet. Fragrant, showy white, purple, or blue flowers produced in loose terminal racemes. Blooms in May and June. Self-seeds prolifically. If seeds are started in winter or early spring, plants will bloom the first year. Does best with light shade and damp, well-aerated soil. Sow in warm soil. Do not cover seeds. Zone 3-8.

143. *Hibiscus coccineus*. Scarlet rose mallow, Texas star hibiscus. Height: 6-8 feet. Deep red funnel-shaped flowers, 5-6 inches wide, from mid- to late summer. Narrow upright habit. A wetland native, but tolerant of drier soils. Full sun to light shade. Hibiscus seeds can have a low germination rate. This species should be sown without covering in warm soil. Zone 6-9.

144. *H. moscheutos*. Common rose mallow. Height: 3-8 feet. Impressive 6- to 12-inch flowers are red, white, pink, or bicolor, some with a dark center. Blooms from midsummer to frost. Its many stems and 8-inch leaves give the plant a shrubby form. Full or part sun and moist, rich soil. Sow seeds outdoors in fall, uncovered. Zone 5-9.

145. *Hosta* 'Big Sam'. Hosta cultivar. Height: 2-3 feet. Has heavily textured, large green leaves and lavender flowers on slender scapes. Tolerates dry conditions better than some other hostas. Hostas prefer shade and moist, well-aerated, loamy soil. Easy to germinate. Zone 3-8.

146. *Hosta* 'Frances Williams'. Frances Williams hosta. Height: 2 feet. Ribbed, blue-green leaves have yellow edges. White flowers rise on slender stalks just above clumping, basal foliage. For culture, see 'Big Sam'. Zone 3-8.

147. *Hosta montana* (formerly *H. elata*). Hosta. Height: 2-3 feet. Distinguished by large leaves with a wavy margin and pale lilac flowers on scapes that bloom in early summer. For culture, see 'Big Sam'. Zone 3-8.

148. *H. sieboldiana*. Siebold hosta. Height: 1 1/2-2 feet. Ornate 10- to 15-inch-long gray-green ribbed leaves form a rosette up to 4 feet wide. Flowers are pale lilac to waxy blue on scapes not much taller than the leaves. For culture, see 'Big Sam'. Zone 3-8.

149. *H. ventricosa*. Blue plantain lily. Height: 3 feet. Dark green leaves are up to 9 inches long and 5 inches wide. Bell-shaped late-summer flowers are violet-blue on 3-foot stems. For culture, see 'Big Sam'. Zone 3-9.

150. *Hosta* sp. Hosta species. Height: 1 1/2 feet. Donor unsure of species. A mid-season bloomer with lavender flowers and light gray-green leaves with a creamy white border. For culture, see 'Big Sam'. Zone 4-8.

151. *Hosta* spp. Mix of hosta species. Height: 1-3 feet. *H. ventricosa*, *H. fluctuans*, *H. plantaginea*, and *H. sieboldiana* with white to purple flowers. For culture, see 'Big Sam'. Zone 4-8.

152. *Inula magnifica*. Magnificent inula. Height: 5-6 feet. A clump-forming herbaceous perennial or subshrub native to central Europe. Bears daisylike yellow flowers up to 6 inches wide on purple speckled stems for about 6 weeks

in early summer. Heat tolerant. Zone 3-8.

153. *Iris pseudacorus*. Yellow iris hybrid. Height: 5 feet. Donor crossed yellow-flowered iris with three white-flowered varieties, so seeds may produce flowers in various combinations of white and yellow. Blooms in late spring. Sow uncovered in fall in moist area. Zone 5-9.

154. *I. setosa*. Wild flag, bristle-pointed iris. Height: 3 feet. Native to both northern North America and northeast Asia, this iris has 3-inch purple flowers in late spring to early summer. The inner petals, or standards, are small and bristlelike. Tolerant of damp conditions. Sow uncovered in fall. Zone 3-8.

155. *I. sibirica*. Siberian iris. Height: to 3 feet. Faintly bluish foliage, sometimes red at the base, and delicate purple spring flowers. Tolerates part sun. Needs moist soil; mulch to keep the roots cool. Do not cover seeds. Zone 3-9.

## 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.

156. *I. spuria*. Seashore iris, butterfly iris. Height: 2-3 feet. This native of Europe and Asia has flowers in shades of blue, lilac, and purple that bloom in spring. Prefers to be planted where it receives ample moisture during the growing season. Sow uncovered in fall. Zone 3-9.

157. *I. versicolor*. Blue flag, blue water iris. Height: 2 feet. Native to northeast and central North America, this free-flowering summer bloomer bears violet to wine red flowers on slender stalks above gray-green sword-shaped leaves. Sow seeds uncovered in fall. Zone 3-8.

158. *Knautia macedonica*. Knautia. Height: 2-2 1/2 feet. Dense clumps of stems rise from a tough rootstock and hairy basal leaves. Dark red to dark purple flowers persist from July to September. Ideal for naturalizing in a woodland garden. Native to the Balkan region of Central Europe; tolerates drought. Zone 6-8.

159. *Leonurus sibiricus*. Motherwort. Height: 3-6 feet. Biennial native to northeast Asia. Spiky whorls of rose or purple flowers bloom on tall stalks. Plants often exhibit three different leaf forms: white or gray fuzzy basal leaves; finely dissected midstem leaves; and entire, lance-shaped upper leaves. Self-sows freely. Zone 4-9.

160. *Leucanthemum × superbum* (formerly *Chrysanthemum × superbum*). Shasta daisy. Height: 2 1/2 feet. White-rayed flowers are up to 3 inches across and have yellow centers. Blooms early summer to frost. The dark green leaves are undivided. Pinch plants to encourage a fuller shape. Sow in warm soil. Zone 4-9.

161. *L. × superbum* 'Snow Lady'. Shasta daisy cultivar. SORRY, NOT AVAILABLE or as a ground cover or as a yellow center and bloom all summer. Zone 4-9.

162. *L. vulgare* (formerly *Chrysanthemum leucanthemum*). Oxeye daisy. Height: 2-3 feet. A typical daisy flower up to 2 inches across, with white rays around a yellow center. Blooms in late



spring. Good for naturalizing in meadows and as a cut flower. Zone 3-9.

**163. *Liatris aspera*.** Rough blazing-star. Height: 3-6 feet. Upright stems with narrow leaves and loose spikes of purple flowers. Tolerates dry, shallow soil. Zone 5-7.

**164. *L. mucronata*.** Blazing-star species. Height: 3-5 feet. A narrow-leaved upright plant that bears spikes of lilac-colored flowers from July to October. Tolerates dry soil. Zone 7-9.

**165. *L. spicata*.** Blazing-star species. Height: 2-5 feet. Two-foot spikes of five to 14 rosy purple florets bloom on smooth stems. Drought resistant. Winter mulching is recommended in cold climates. Prefers moderately fertile, sandy soils. Dry storage of seeds for up to 6 months may improve germination. Zone 3-10.

**166. *L. spicata* 'Kobold'.** Blazing-star cultivar. Height: 1½ feet. Similar to the species but with flowers in various hues of purple. Zone 4-9.

**167. *Ligularia dentata*.** Bigleaf goldenray, ragwort. Height: 3-4 feet. This mounded plant has large, leathery, rounded or kidney-shaped basal leaves. Bears yellow to orange daisylike flowers in 3- to 6-inch corymbs on tall stems. Bog native prefers moist to wet soils, filtered light. Zone 4-8.

**168. *Lilium formosanum*.** Lily species. Height: 5-7 feet. Abundant dark green leaves up to 8 inches long. Trumpet-shaped flowers are 5-8 inches long, white inside and maroon outside. Blooms mid- to late summer for about 3 weeks. Likes moist, sandy soil with full sun to part shade. Benefits from winter protection. Zone 5-8.

**169. *L. regale*.** Regal lily. Height: 2-6 feet. Bears up to 25 fragrant funnel-shaped flowers, each 5-6 inches across with a white interior, yellow base, and pink to purple exterior. Linear leaves are scattered around the straight, unbranched stem. Sow seeds outside in early spring. Zone 4-9.

**170. *Lilium* spp.** Tiger and Asiatic lily hybrids. Height: 1-6 feet. These seeds are derived from crosses made between lily species. Flowers may be combinations of white, yellow, orange, and red. Sow seeds outside in early spring. Zone 5-9.

**171. *Liriope spicata*.** Creeping lilyturf. Height: 8-12 inches. Grasslike evergreen that spreads by rhizomes to form a dense, mostly impermeable ground cover. Insignificant pale violet to white flowers rise on scapes above the leaves to bloom in late summer, followed by formation of blue to black berrylike fruits. Zone 4-10.

**172. *Ludwigia* sp.** Ludwigia. Height: 2 feet. A member of a genus of herbaceous or woody perennials usually found in or near water. According to the donor, this plant has yellow flowers that bloom all summer. Zone 6-9.

**173. *Lupinus perennis*.** Sundial or wild lupine. Height: 2 feet. One-foot spikes of showy blue, pink, or white flowers bloom in midsummer over clumps of compound leaves. Soak seeds in lukewarm water and nick seed coats before sowing outdoors. Self-sows readily. Zone 4-8.

**174. *Lychnis chalcidonica*.** Jerusalem campion, Maltese cross. Height: 2-3 feet. Lance-shaped 2- to 4-inch opposite leaves. Produces dense clumps of vivid scarlet flowers on tall stems in summer.

Often needs staking. Full to part sun in moist, well-aerated, fertile soil. Zone 3-9.

**175. *L. coronaria*.** Rose campion. Height: 2-3 feet. Bright magenta flowers borne on long stems contrast with greenish white oval leaves 1-4 inches long. Blooms late spring into early summer. Self-sows. Zone 4-8.

**176. *L. coronaria* 'Alba'.** Rose campion. Height: 2-3 feet. Silvery white flowers bloom late spring to early summer, complemented by silver-green foliage. Self-sows. Zone 4-8.

**177. *L. flos-cuculi*.** Ragged robin, cuckoo flower. Height: to 3 feet. Pale pink or purple flowers in loose cymes bloom in summer on erect stems above tapering basal leaves. Stem leaves are linear to lance shaped. Tolerates "wet feet," so ideal for pond edges or damp meadows. Native of Europe naturalized in northeast U.S. and Canada. Self-seeds prolifically. Sow outdoors. Zone 6-9.

**178. *Macleaya cordata*.** Plume poppy. Height: 5-10 feet. This clump-forming member of the poppy family produces enormous stems and 8-inch heart-shaped leaves. In summer, its stems are topped with feathery, foot-long panicles of creamy white flowers, each with a spray of conspicuous stamens. Spreads aggressively by runners. Seeds are collected from AHS's River Farm headquarters. Zone 3-8.

**179. *Malva moschata*.** Musk mallow. Height: 2-3 feet. Bushy with satiny, 2-inch flowers in rose, pink, and white. Blooms June through September. Prefers lime-free soil. Zone 5-8.

**180. *M. sylvestris* 'Brave Heart'.** High mallow cultivar. Height: 4-5 feet. Tall spikes of lavender to pink flowers are veined with velvety purple.

Full to part sun. Short-lived, but usually self-seeds. Sow outdoors in early spring. Slow to germinate. Zone 4-8.

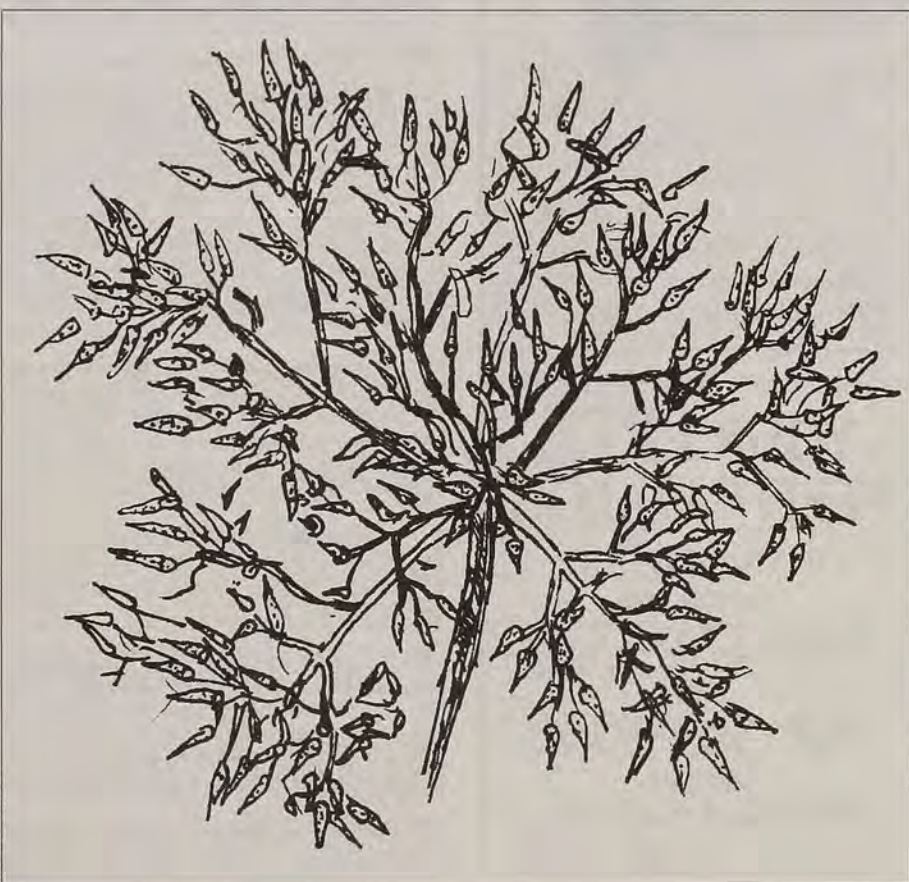
**181. *M. sylvestris* 'Zebrina'.** High mallow cultivar. Height: 3 feet. Blooms in a mass of white to pink flowers with purple markings from July to October. Full to part sun. Short-lived, but usually self-seeds. Zone 4-8.

**182. *Meconopsis cambrica*.** Welsh poppy. Height: 1-2 feet. Lemon yellow flowers up to 2 inches wide bloom on slender hairy stems rising from a nest of narrow, serrated leaves. Plant in a moist loam-sand mix and protect from heat and strong winds. Viability decreases with age. Can be started indoors or sown outdoors after danger of frost has passed. Zone 6-9.

**183. *Myosotis sylvatica*.** Forget-me-not. Height: 12-18 inches. Light blue flowers with yellow centers borne on long stalks from early spring to midsummer. Flowers from seed in 6 weeks and reseeds readily. Can be sown outside. Prefers area with moist soil and light shade. Zone 3-8.

**184. *Nepeta mussinii*.** Persian nepeta, catmint species. Height: 1 foot. Sprawling, square stems with opposite leaves are topped with loose racemes of lavender flowers in spring. Cut spent flowers for a second bloom. Thrives in dry sandy soils. Self-sows. Zone 3-8.

**185. *Oenothera biennis*.** Evening primrose. Height: 1-5 feet. Native of eastern North America. Fast-spreading, with yellow, cup-shaped flowers that spring from a rosette of long, flat basal leaves. Blooms open in late afternoon or evening beginning in early to midsummer. Tolerates full sun or part shade and likes dry soil. Cold treat or sow outdoors in fall. Do not cover seeds. Zone 3-10.





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186. *O. speciosa* (formerly *O. berlandieri*). Mexican evening primrose. Height: 6–12 inches. A compact, prostrate plant with rose-colored, 1- to 2-inch flowers. Heat tolerant, but tends to be invasive. Zone 5–10.

187. *Papaver rupifragum*. Poppy species. Height: to 18 inches. This native of Spain has refined orange to red flowers that bloom in late spring to early summer on long, branching stalks. Basal foliage is narrow and finely serrated. Store in dry, cool place for 3 months before germinating, or sow outdoors. Zone 6–9.

188.  $\times$  *Pardancanda norrisii*. Park's candy lily hybrid. Height: 3 feet. A cross between *Pardanthopsis* and *Belamcanda* that bears 3- to 4-inch blooms in yellow, blue, red, purple, pink, white, orange, multicolor, striped, and polka dot combinations. Flowers last one day but blooms appear summer through fall. Has iris-like lance-shaped leaves and decorative black seed heads. Heat and drought tolerant. Biennial, but flowers in one year with long growing season. Can be started indoors or sown outdoors after last frost. Zone 5–10.

189. *Penstemon eatonii*. Penstemon. Height: 1–3 feet. A short, erect, subshrub with silver-green stems and basal foliage. Tubular scarlet flowers bloom in summer on terminal spikes. To avoid moisture build-up around the crown and roots, soil should be very well-aerated. Cold treat. Zone 5–9.

190. *P. grandiflorus*. Penstemon. Height: 2–4 feet. Donor says 25 to 30 percent of seeds are from 'Albus' cultivar. An evergreen rosette of gray-green foliage forms the base for this large-flowered penstemon. The broadly bell-shaped and slightly bearded 2-inch-long flowers are displayed on 8- to 10-inch spires. Flowers of the species are lilac to bluish lavender, while those of the cultivar are white. For culture, see *P. eatonii*. Zone 3–9.

191. *Physostegia virginiana*. Cultivar of false dragonhead, obedient plant. Height: 3 feet. Donor unsure of cultivar. Impressive 6- to 10-inch racemes with 1 1/4-inch snapdragonlike white flowers. Called "obedient plant" because flowers stay in whatever position they are placed. Blooms in late summer. Excellent for shady borders or wildflower gardens. Full to part sun and moist, well-aerated soil. Best to plant in spring. Zone 2–9.

192. *Platycodon grandiflorus*. Balloon flower. Height: 2–3 feet. Upright, sparsely leaved stems produce large blue, pink, or white buds resembling balloons. Flowers are up to 3 inches across and can last most of the summer. Plants appreciate some shade in the South. Zone 3–8.

193. *P. grandiflorus* 'Fuji'. Balloon flower cultivar. Height: 2–3 feet. Blue-flowered plant from Fuji series of balloon flowers. For culture, see species. Zone 3–8.

194. *Potentilla* sp. Cinquefoil. A sprawling, prostrate plant that has a growth habit much like that of strawberry. Small golden yellow flowers are borne in loose cymes and bloom in spring. Palmately compound leaves have 3–5 leaflets with sharply serrated margins. Zone 4–8.

195. *Ratibida columnifera*. Prairie coneflower species. Height: to 3 feet. Hairy, gray-green leaves. Flowers have bright yellow, slightly

drooping rays and a dark central cone. Zone 4–8.

196. *Rhexia virginica*. Meadow beauty. Height: 1 1/2 feet. A native of bogs and sandy marshes of central North America. Features reddish-striped stems and oval to lance-shaped leaves that are hairy on the surface and shiny beneath. Inch-wide pink to purple flowers are borne solitary or in terminal cymes in July and August. Does best in sunny, moist sites in peat-sand mix. Sow seeds, uncovered, in cold frame or outdoors in pots and grow seedlings for about two years before transplanting into the garden. Zone 6–9.

197. *Rudbeckia hirta*. Black-eyed Susan species. Height: 2–3 feet. Erect with rounded habit. Deep green foliage and yellow flowers with dark central cone. Blooms summer to fall. Full sun to very light shade. Tolerates heat and dry soils. Biennial. Zone 4–8.

198. *R. hirta* 'Gloriosa Daisy'. Black-eyed Susan cultivar. Height: 2–3 feet. Gold, yellow, bronze, orange, brown, and mahogany single flowers are 3–6 inches wide and have center bands of brown, yellow, or black. Full sun to part shade. Prefers rich, moist soil, but will grow in poor soil. Heat and drought tolerant. Zone 4–8.

199. *R. maxima*. Great coneflower. Height: 5–7 feet. Large yellow flowers are carried atop tall slender stems and bloom mid- to late summer. Large blue-green, paddle-shaped basal leaves are up to 18 inches long. Ideal for naturalizing. Zone 6–10.

200. *R. nitida*. Coneflower. Height: 2–4 feet. Upright plants with bright green leaves and 3- to 4-inch-wide, yellow, daisylike flowers with drooping petals that bloom on slender stems in mid- to late summer. Heat and drought tolerant. Self-seeds easily and may become invasive. Zone 4–10.

201. *R. triloba*. Thin-leaved coneflower. Height: 4 1/2 feet. Distinguished from *R. hirta* by its smaller, more numerous flowers with shorter rays. Somewhat invasive. Sow in fall. Zone 3–10.

202. *Ruta graveolens*. Common rue. Height: 2–3 feet. A subshrub that forms round clumps with small yellow flowers held in terminal corymbs above finely dissected blue-green aromatic foliage. Blooms in midsummer. Secretes a chemical that can cause dermatitis in susceptible people. Do not cover seed. Zone 4–9.

203. *Sagittaria latifolia*. Wapato, broad-leaved arrowhead. Height: to 4 feet. Native to bogs and wetlands in North America. Arrow-shaped leaves and white flowers in whorls of three arise on slender erect petioles from tuberous roots. Often grows submerged in shallow water. Blooms late summer to fall. Donor says seeds should be sown immediately in pots placed in shallow trays of water. One study indicated that seeds require 6 months of immersion in cold water to germinate. Zone 5–10.

204. *Salvia jurisicii*. Salvia. Height: 18–24 inches. Loosely-branched racemes of inverted violet to blue pubescent flowers bloom in early summer above bushy, blue-green to gray, pubescent foliage on this central European native. Do not cover seeds. Zone 6–9.

205. *Sanguisorba obtusa*. Japanese burnet. Height: 3–4 feet. This native of Japan has gray-



green compound leaves up to 18 inches long and reddish pink flowers in 4-inch spikes. Long stamens in the flowers create a fluffy appearance. May need some midday shade in the South. Can be invasive. Zone 4–9.

**206. *S. tenuifolia*.** Burnet. Height: 3–4 feet. Native to wet meadows and streambanks of eastern Asia, this species has large, mostly basal, compound leaves made up of 11–15 deeply serrated leaflets. Pink to purple flowers up to 3 inches long bloom on terminal spikes in late summer and fall. Zone 3–8.

**207. *Saponaria officinalis*.** Bouncing Bet. Height: 3 feet. Native of Europe and Asia naturalized in North America. Rough green leaves are borne on erect stems. Pale pink or white flowers appear June to September on short stalks. Sow in fall. Zone 4–8.

**208. *Schizachyrium scoparium*.** Little bluestem grass. Height: 2–5 feet. A clumping warm-season grass with blue-green foliage and long flower spikes bearing plumelike seed heads in late summer. Fall color ranges from bronze to bright orange. Self-sows and can be invasive. Zone 3–10.

**209. *Seymeria macrophylla* (also called *Dasis-toma macrophylla*).** Mullein foxglove variety. Height: to 8 feet. Biennial variety discovered by donor in Wilmington, Ohio. Erect plant with large lower leaves. Bears pale yellow flowers in spiky bracts that stem from leaf axils. Blooms attract butterflies. Prefers part shade. Zone 5–6.

**210. *Sidalcea malviflora*.** Checkerbloom, prairie mallow. Height: 2–4 feet. Silky pink flowers open off terminal raceme surmounting round, glossy green basal leaves. Blooms in summer and may be deadheaded to encourage reblooming and additional basal growth needed for overwintering. Grows well in both full sun and part shade. Prefers moist, loamy soil and cool climates. Seeds can be started indoors or sown outdoors after last frost. Zone 5–10.

**211. *Silphium perfoliatum*.** Cup plant. Height: 5–8 feet. Clump-forming native of central and eastern North America. Multiple square stems rise from a woody rootstock. Has opposite, simple leaves that curl around the stem to form cups. Bright yellow 3-inch-wide flowers bloom July to September. Prefers moist soil. Zone 3–9.

**212. *Sisyrinchium californicum*.** Golden-eyed grass. Height: to 2 feet. From May to July, bright yellow flowers ride on stems above clumps of swordlike leaves. Self-seeding but not aggressive. Requires a moist site in full sun. Sow outdoors. Do not cover seeds. Zone 8–10.

**213. *Stokesia laevis*.** Stokes aster. Height: 18–24 inches. Dark green, narrow leaves and blue flowers with feathery, deeply cut rays. Blooms July to October. Full sun to light shade. Do not cover seeds. Zone 5–9.

**214. *Talinum teretifolium*.** Fameflower. Height: 4–12 inches. Native from Pennsylvania south to Georgia and Texas. Semisucculent with fleshy, short, tufted stems and slender, cylindrical leaves. Bright pink flowers rise above foliage on slender, leafless stalks. Prefers dry, sandy, or rocky soil. Zone 6–10.

**215. *Tanacetum parthenium* (formerly *Chrys-anthemum parthenium*).** Feverfew. Height: to 2 feet. Aromatic foliage and daisylike flowers

with yellow centers and white rays. Sometimes dried for medicinal uses. Prefers sandy soil and full sun but tolerates light shade. Sow outdoors in early spring. Zone 5–8.

**216. *T. vulgare*.** Common tansy. Height: to 4 feet. A bushy plant with dark green, finely divided aromatic leaves and flat clusters of small, yellow, buttonlike flowers. Useful for dried arrangements. Plants are said to repel ants. Not particular about growing conditions. Can be invasive. Zone 3–9.

**217. *Tragopogon pratensis*.** Yellow goatsbeard. Height: 3 feet. Taprooted biennial with milky sap and linear to lance-shaped clasping leaves. Yellow florets are carried on hollow stems. Dandelionlike fluffy seed heads form after bloom. Native to Europe, goatsbeard is naturalized and weedy in North America. Grown or gathered for medicinal or culinary uses. Zone 3–9.

**218. *Verbascum chaixii* 'Album'.** Mullein. Height: 3–4 feet. A columnar perennial rising from fuzzy, coarsely toothed, gray basal leaves. Midsummer-blooming flowers are white with a plum-colored center. Prefers sandy or slightly rocky alkaline soil. May self-seed. Does not do well in wet or cold soils. Do not cover seeds. Zone 5–9.

**219. *Verbascum* sp.** Mullein. Height: to 8 feet. Felted, gently toothed leaves are 1 foot long. One-inch yellow flowers with purple stamens form dense clusters along erect spikes. Tolerates dry soil. Sow in warm soil. Do not cover seeds. Biennial. Zone 5–9.

**220. *Verbascum* sp.** Mullein. Height: 3–5 feet. Felted, gently toothed leaves are 1 foot long. Yellow flowers form dense clusters along erect spikes. Tolerates dry soil. Sow in warm soil. Do not cover seeds. Biennial. Zone 5–9.

**221. *Verbena bonariensis*.** Brazilian verbena. Height: 3–6 feet. Tiny, fragrant, lilac-purple flowers are crowded into half-inch spikes held aloft on terminal panicles. Widely spaced leaves are clustered around self-supporting wiry stems. Heat and drought tolerant; needs dry feet. Zone 7–9.

**222. *Vernonia altissima*.** Ironweed species. Height: 7–10 feet. Narrow leaves on sturdy, erect stalks topped with a loose head of purple flowers. Best suited to large meadow gardens. Blooms in late summer. Self-sows. Zone 4–8.

**223. *V. noveboracensis*.** New York ironweed. Height: to 6 feet. Very similar to *V. altissima*. Zone 4–8.

**224. *Yucca filamentosa*.** Adam's needle. Height: 8 feet. Donor unsure of cultivar; may be 'Golden Sword'. Inflorescence rises above basal rosette of spiny leaves on 3- to 5-foot stem. Off-white flowers hang from small branchlets. Blooms early to midsummer. Variegated leaves are green with yellow stripe. Drought resistant. Dry-store seeds for six months before germinating. Takes approximately five years to bloom from seed. Zone 5–10.

**225. *Y. glauca*.** Soapweed. Height: 3–5 feet. More refined than *Y. filamentosa*, this species has narrow linear leaves up to 2 feet long with a white or greenish white margin. Cream-colored to green flowers, sometimes tinged with a rosy brown, are borne on a central scape. Blooms in early summer. Ideal for rock garden. Zone 4–10.

**226. *Adlumia fungosa*.** Climbing fumitory. Biennial native to eastern North America from Ontario to Michigan and south to North Carolina. Bears pale to deep pink flowers from early summer to frost. Foliage is delicate and fernlike with coiling leafstalks. Plant in moderate shade; prefers moist, rich soil. Self-sows in damp places. Zone 4–8.

**227. *Antigonon leptopus*.** Mexican creeper, coral vine. Height: 30–50 feet. A tender perennial with jointed, slender stems and alternate, arrow-shaped leaves. Small, bright, coral-pink to coral-red flowers bloom in summer, followed by small, dry, triangular fruit. In temperate regions, start indoors and transplant in spring. Zone 9–10.

**228. *Campsis* sp.** Trumpet vine. Height: to 50 feet. A woody vine that climbs using aerial roots. Needs support from trellis or tree. Bears showy, orange-red, trumpet-shaped flowers in terminal clusters from summer through fall. Slow to germinate. Do not cover seeds. Zone 5–9.

**229. *Cardiospermum halicacabum*.** Balloon vine, heart pea. Height: to 10 feet. A tender woody perennial usually grown as an annual in temperate regions. Small white flowers bloom in midsummer, followed by straw-colored angular fruits. Needs support of wall, fence, or trellis. May self-sow in milder areas. Zone 9–11.

## SAVE THIS CATALOG!

**230. *Clematis addisonii*.** Clematis. Height: to 3 feet. A low-growing viny shrub with pink to purple flowers in May. Native to limestone regions of southwest Virginia and West Virginia. Difficult to germinate; may require use of gibberellic acid. Zone 6–8.

**231. *C. integrifolia*.** Solitary clematis. Height: 2–4 feet. A clump-forming vine with erect herbaceous stems. Solitary terminal flowers bloom June through September in colors ranging from blue to violet. Top needs full sun, but keep roots cool with moisture-retaining soil rich in compost and peat moss, and by mulching. Clematis seeds can be difficult to germinate or show low viability. Sow outdoors in late fall for spring germination. Cold treat to germinate indoors. Zone 3–8.

**232. *C. paniculata*.** Clematis. Height: to 30 feet. An autumn-blooming variety that bears fragrant 2- to 4-inch white flowers. Sturdy climber with stout branchlets, leathery compound leaves, and bountiful tangles of slender stems. For culture, see *C. integrifolia*. Zone 3–8.

**233. *C. recta*.** Clematis. Height: 2–3 feet. A non-vining species that may require staking. Bears fragrant white flowers on terminal panicles above the foliage. Seed heads make attractive late-season display. For culture, see *C. integrifolia*. Zone 3–8.

**234. *C. reticulata*.** Clematis. Height: 5–9 feet. A climbing vine with slight, downy stems and gray-green leaves made up of three to seven leaflets. Native to the Southeast. Solitary, lustrous, broadly bell-shaped, nodding flowers, lilac in-



side and gray to yellow and downy outside, bloom from late summer into fall. For culture, see *C. integrifolia*. Zone 6–9.

**235. *C. versicolor*.** Leather flower. Height: 4–12 feet. This native of the central and southeastern U.S. bears solitary, green-tipped, dull purple to blue flowers with two bracts near the base. Its compound leathery leaves have up to eight elliptical leaflets. For culture, see *C. integrifolia*. Zone 5–9.

**236. *Clematis* spp.** Clematis. Donor unsure of species. Height: to 12 feet. A mix of clematis seeds that will produce vines with flowers that can range from white to lavender. Hardiness unknown, but donor lives in Zone 6.

**237. *Dioscorea batatas*.** Chinese yam, cinnamon vine. Height: to 10 feet. A relative of the cultivated yam, this vine grows from edible tuberous roots up to 3 feet long. Bears small, inconspicuous but fragrant flowers on twisted spikes jutting from leaf axils. Prefers moist, deep, well-aerated soil. Sow small root offsets outdoors. Considered invasive in Illinois, Virginia, and Maryland. Zone 5–10.

**238. *Dolichos lablab*.** Hyacinth bean. Height: 6–10 feet. An ornamental member of the pea family with 1-inch-long pinkish-purple flowers. The 2-inch purple pod contains black or white seeds. These are edible but should be thoroughly cooked with two to four water changes.

**239. *Ipomoea coccinea*.** Star ipomoea. Height: 10 feet. A slender-stalked, fast-growing annual with large, bright green leaves and incandescent red tubular flowers. Native to eastern and central U.S. Notch seeds or soak in tepid water before sowing.

**240. *I. purpurea* ‘Crimson Rambler’.** Common morning glory cultivar. Height: to 8 feet. Fast-growing annual climber with showy funnel-shaped maroon flowers that bloom in late summer. Has heart-shaped leaves and delicate stems that require a trellis for support. Notch seeds or soak in tepid water before sowing outside after danger of frost has passed.

**241. *I. quamoclit*.** Cypress vine, cardinal climber. Height: to 20 feet. Fast-growing annual with slender threadlike leaves and brilliant red, trumpet-shaped flowers. Prefers moist, loamy soil. Can be started indoors in spring in cooler areas. Notch seeds or soak in tepid water before sowing.

**242. *I. × multifida*.** Cardinal climber, hearts-and-honey vine. Height: to 12 feet. *I. quamoclit* hybrid has more maplelike leaves that turn burgundy in fall.

**243. *Ipomoea* spp.** Morning glory species. A mixture of species from this genus of tough, fast-growing annual vines with large trumpet-shaped flowers. Will tolerate some shade. Excellent for training or interplanting with other climbers. Can be somewhat invasive. Soaking seeds overnight will speed germination.

**244. *Lathyrus latifolius*.** Sweet pea vine, perennial pea. A 6- to 9-foot climbing vine with blue-green foliage and typical pea family flowers in midsummer. Those offered are pink and white or plain white. Very adaptable. Scarification or an overnight warm water soak may improve germination. Zone 3–9.

**245. *Passiflora incarnata*.** Maypop, wild passionflower. Height: to 30 feet. Bears 3-lobed leaves and purplish pink flowers 2 inches across. Blooms in late summer and produces an edible yellow fruit that is opened by squeezing until it pops. Perennial that dies to ground in winter. Spreads by root and can be invasive. Will tolerate part shade; requires moist, well-aerated soil. Can be difficult to germinate. Sow in warm soil. Zone 7–10.

**246. *Podranea ricasoliana*.** Pink trumpet vine. Height: 4–6 feet. A shrubby climber native to southern Africa. Established plants will withstand light frosts, but usually grown as an annual north of Zone 9. Funnel-shaped, fragrant, pink flowers have red stripes and hang in loose panicles. Compound leaves formed of seven to 11 leaflets. Drought tolerant.

**247. *Tropaeolum peregrinum*.** Canary creeper, canary vine. Height: to 9 feet. A perennial in its native South America, this climber is treated as a half-hardy annual north of Zone 9. Long-stalked flowers are lemon yellow with red spots at the base and a hooked green spur. Light green, prominently veined leaves have five deeply cut lobes.

**248. *Tweedia caerulea* (syn. *Oxypetalum caeruleum*).** Southern star. Height: to 3 feet. A gently twining subshrub native to South America that can be grown as an annual in temperate climates. Sparsely branched stems are covered with fine white down. Inch-wide ray-shaped flowers are light blue with a tinge of green when young and turn darker to nearly lilac with age. Blooms in autumn if grown as an annual. Pinch back young plants to encourage branching.

## TREES & SHRUBS

Tree seeds are often difficult to germinate because they have impenetrable seed coats or other complicated mechanisms to protect them from early germination. Many of the entries in this section incorporate germination advice from seed studies conducted by Norman Deno and published in his book, *Seed Germination Theory and Practice*. (See sidebar, page 9.) To sprout tree seeds, it is usually necessary to keep them moist while exposing them to one or more cycles of warmth and cold. Depending on where you live and the relative size of your indoor and outdoor space, you may want to plant tree seeds in a protected area outdoors, and let nature do the warm and cold conditioning. Conditioning seeds indoors clearly gives the grower more control, and Deno found some seeds almost impossible to start outdoors. Unless otherwise noted, cold conditioning means 3 months at 40 degrees, and warm conditioning is 3 months at 70 degrees. It may also be necessary to break the seed coat physically, a technique called scarification. This can often be done by rubbing the seeds with sandpaper, but larger seeds may need to be nicked with a knife.

**249. *Abies procera*.** Noble fir. Height: 5–100 feet. Slow-growing fir. Pyramidal, with blue-green 1-inch needles and cones up to 10 inches long. Eventually loses its lower limbs. Likes cool, moist, acidic soil in full or part sun. Cold treat. Zone 5–7.

**250. *Acer buergerianum*.** Trident maple. Height: 20–35 feet. Large shrub or small tree with a

loose, open habit. Its common name is derived from its leaves, which have three triangular-shaped lobes. Fall color ranges from scarlet to orange-yellow. Numerous small, greenish white flowers bloom in May on downy corymbs. Inch-long winged samaras mature in fall. A handsome specimen tree. Cold treat. Zone 6–9.

**251. *A. circinatum*.** Vine maple. Height: to 36 feet. Native to moist woods and streambanks in maritime northwestern North America, this is a multistemmed, somewhat shrubby tree with variable fall color. Its leaves have a heart-shaped base with multiple, toothed lobes. Red, winged fruits make a colorful display in late spring. Germination may be difficult. Soak seeds in water for several days and carefully remove or nick seed coats before cold treating seeds, or sow outdoors and allow to go through natural cycles of cold and heat. Zone 6–8.

**252. *A. griseum*.** Paperbark maple. Height: 20–30 feet. Width: 15–35 feet. Slow-growing tree with rounded to oval habit. Ornamental value enhanced by cinnamon-brown bark, which begins peeling after second year to expose bright new bark. Dark blue-green leaves consist of three coarsely toothed leaflets; fall color can be spectacular bronze to red in northern states. Fuzzy, winged samaras form in spring after solitary greenish flowers bloom. Large percentage of seeds are infertile. Cold treat seeds, then carefully remove or nick seed coats and warm treat. Zone 5–8.

**253. *A. pensylvanicum*.** Striped maple. Height: 15–30 feet. Decorative ornamental tree has green bark striped with white. Large, oval, three-lobed leaves turn bright yellow in fall. Difficult to germinate unless impervious seed coat is removed or notched and seeds cold treated. Zone 3–7.

**254. *A. rufrinerve*.** Redvein maple. Height: 20–30 feet. Native to Japan, this is a large shrub to small tree with an uneven rounded to flat-topped crown. Young stems are shiny blue to white; older bark is red to brown with white stripes. Leaves are three triangular lobes with the central the largest, dark green above and pale green below with reddish veins. Flowers bloom in 3-inch-long, reddish brown, pubescent racemes in May. Reddish brown samaras, initially covered with fine hairs, form later. Does best in part shade. Cold treat. Zone 6–8.

**255. *Albizia julibrissin*.** Silk tree, mimosa. Height: 20–35 feet. A vase-shaped, multi-stemmed tree with a flat to slightly rounded crown. Compound leaves formed of multiple small leaflets and showy pink to orange flower clusters between May and July give the tree an airy and slightly tropical look. Carefully nick or puncture seed coats before germinating at 70 degrees. Zone 6–9.

**256. *Amorpha fruticosa*.** Indigobush amorpha, false indigo. Height: 6–20 feet. This deciduous shrub, native to the central and southern United States, can reach 5–15 feet wide, but tends to become lanky over time. Its bright green compound leaves have up to 30 oval to elliptical leaflets per stem. The flowers, which bloom in June on upright spikes, are a purplish blue with orange anthers. Small kidney-shaped seed pods form in fall and sometimes persist into winter. Tolerant of poor, dry, sandy soils. Self-seeds and can become invasive. Nick or puncture seed coats and cold treat, or sow outdoors in fall. Zone 5–9.



## 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.

**257. *Anisacanthus wrightii*.** Desert honeysuckle. Height: 2–4 feet. Low-growing shrub native to southwestern North America. Bears red flowers on one-sided terminal spikes. Prefers warm, dry climates. Zone 7–10.

**258. *Bauhinia variegata* (syn. *B. purpurea*).** Purple orchid tree. Height: 20–35 feet. Native to central and eastern Asia, this large shrub to small tree has spectacular pink to purple orchidlike flowers that bloom from January to April. Leaves are light green and double lobed. Untidy, bean-shaped seed pods form in summer. Germinate seeds at 70 degrees in dryish medium. Zone 9–11.

**259. *Betula platyphylla*.** Asian white birch. Height: to 60 feet. This native of eastern Asia has two botanical varieties, one of which has a pyramidal habit while the other is more open. Both have pure white, peeling bark with dark triangular markings and broad, oval, coarsely serrated leaves. Fall color ranges from yellow to red. Birch seeds are notoriously infertile. Cold treat then warm treat, uncovered. Zone 5–8.

**260. *Butia capitata*.** Jelly or pindo palm. Height: 10–20 feet. Native to South America, this is a relatively hardy species with a trunk to about 18 inches in diameter, often covered with old leaf bases. Arching fronds are made up of many feathery blue-green leaflets. Inch-long, oblong, yellow to orange edible fruits hang in clusters after flowering. Requires lengthy germination; sow in moist peat with bottom heat. Zone 8–11.

**261. *Buxus microphylla* var. *koreana*.** Boxwood. Height: 3–4 feet. A hardy, slow-growing variety native to Japan that grows up to 6 feet wide with a loose, open habit. It has small oval to elliptical leaves that turn yellowish in winter. Insignificant flowers are fragrant and attract bees. Cold treat. Zone 5–9.

**262. *Callicarpa americana*.** American beautyberry. Height: 3–8 feet. A loosely branched, open shrub with coarse, light green, fuzzy foliage and a copious load of 1/4-inch violet fruits in fall. Full or part sun. Best to sow seeds in fall. Zone 7–10. In Zone 5–6, beautyberry may still be worth growing but will die back to the ground in winter.

**263. *Calocedrus decurrens*.** Incense cedar. Height: 30–70 feet in cultivation. A striking columnar specimen tree that rarely gets wider than 10 feet. Dark green, aromatic, needlelike leaves are clustered in fours. The bark is grayish green or reddish and smooth on young trees and becomes brown to red and fibrous with age. Cylindric tapering cones ripen to reddish brown in early autumn and remain on the tree until spring. Intolerant of polluted or windswept conditions, but tolerates some drought and heat. Native to western U.S. Cold treat or sow outdoors in fall. Zone 5–8.

**264. *Camellia* sp.** Camellia. Donor unsure of species. Height: 10–15 feet. A slow-growing evergreen shrub that can reach 6–10 feet in diameter. Has glossy dark, leathery foliage and

bears flowers that range from white to red. Depending on species, blooms open from fall through early spring. Prefers part shade and moist, well-aerated, acidic soil high in organic matter. Seeds are slow to germinate and should be soaked in hot water for 24 hours before sowing. Zone 7–9, but range can be extended in warmer coastal states and by siting plants in protected locations.

**265. *Caragana arborescens*.** Siberian peashrub or peatree. Height: 15–20 feet. An erect, somewhat oval shrub with sparse branches that can reach 12–18 feet in diameter, this native of northeastern Asia has 2- to 3-foot compound leaves composed of eight to 12 oval, spine-tipped, light green leaflets. Bright yellow flowers bloom in spring on old wood. Brown beanlike seed pods ripen in late summer and explode. This nitrogen-fixing legume is tolerant of poor soils and dry or cold conditions. Useful as windbreak or wildlife plant. Nick or puncture seed coats before sowing. Zone 2–7.

**266. *Caryopteris* × *clandonensis* 'Blue Mist'.** Bluebeard. Height: 2–4 feet. A low-growing deciduous shrub with gray-green aromatic leaves and clustered sky blue flowers that bloom in late summer. Woody stems should be cut back hard in spring. Zone 6–8.

**267. *Cassia alata* (syn. *Senna alata*).** Ringworm cassia. Height: 8 feet. A large-leaved shrub native to the tropics. Bears large yellow flowers on spikelike racemes and has compound leaves up to 2 feet long. Winged seed pods turn black when mature. Used by natives to treat ringworm. Prefers soil with a loam-sand mix. Seeds should be soaked in hot water and scarified before sowing indoors. Transplant outdoors after danger of frost has passed. Zone 8–11.

**268. *Catalpa* sp.** Catalpa species. Height: 40–60 feet. A narrow, open, sometimes irregular tree with an oval crown. Large, heart-shaped leaves provide an exotic look and turn yellow in fall. Spectacular clusters of white blossoms with gold and purple markings inside bloom in upright panicles in May and June. Pendulous narrow seed pods develop in late summer and can persist into winter. Do not cover seeds during germination. Zone 4–8.

**269. *Cercis canadensis*.** Eastern redbud. Height: 20–30 feet. A small deciduous tree native to the eastern U.S. Reddish purple blooms appear in April, lasting 2–3 weeks until heart-shaped foliage begins to develop. Pealike seed pods develop in summer. Thrives in full sun to part shade and prefers moist but well-aerated soil. Germination can be difficult and may take several months. Try alternating warm and cold treatments before sowing indoors, or sow outdoors in fall. Zone 4–9.

**270. *Chionanthus virginicus*.** Fringe tree, old-man's-beard. Height: 15–25 feet. A large shrub or small tree with variable habit from bushy to spreading or even open and straggly. Native to the East Coast from New Jersey south to Florida and Texas. Opposite leaves are narrow and elliptical to oval with fine hairs on the underside. Slightly fragrant flowers droop in tassellike panicles in May. Dark blue drupes that dangle unobtrusively under the leaves ripen in early fall. Beautiful, pollution-tolerant specimen shrub or tree. Seeds have double dormancy that can be broken by a cold treatment sandwiched between two warm treatments. Zone 4–9.



**271. *Cladrastis kentukea*.** American yellowwood. Height: 30–50 feet. Deciduous tree indigenous to southeastern and south central U.S. Has rounded, wide-spreading form with compound bright green leaves that turn yellow to orange in fall. Fragrant white flowers in pendulous panicles bloom in June. Sow seeds shelled from fresh seed pods, or notch seed coats of dry seeds. Zone 3–8.

**272. *Cornus florida*.** Flowering dogwood. Height: to 30 feet. Native to eastern North America, this is a small, low-branched tree with a flat or slightly rounded crown. Opposite oval leaves are dark green above with prominent veins and turn reddish purple in autumn. Insignificant greenish yellow flowers that bloom April to May are encased by four showy white bracts. Clusters of glossy red fruits form in late summer and provide interest and food for wildlife. Slow to germinate. Sow outdoors in fall or alternate cold and warm treatments. Zone 5–9.

**273. *C. kousa* var. *chinensis*.** Chinese or Kousa dogwood. Height: 20–30 feet. Vase-shaped in youth, this Asian native becomes rounded with age. Gray-brown bark exfoliates to create mosaic effect on trunk. Opposite oval to elliptical leaves have prominent veins on the upper surface and reddish to purple fall color. As with *C. florida*, insignificant flowers are surrounded by four creamy white bracts, but bloom about three weeks later than the American native. Attractive rounded, pinkish drupes with a bumpy, leathery casing develop in late summer. The interior flesh is edible but insipid. Cold treat or sow outdoors in fall. Zone 4–8.

**274. *C. mas*.** Cornelian cherry, sorbet. Height: 20–25 feet. A small, multistemmed tree with a rounded form and exfoliating bark. Yellow flowers bloom for 3 weeks in March before foliage emerges. Dark green leaves are joined by oblong, red, edible fruit in July. For culture, see *C. florida*. Zone 4–8.

**275. *C. nuttallii*.** Pacific dogwood. Height: 20–40 feet. Native to the Pacific Northwest, this dogwood resembles *C. florida* but usually has six bracts around each true flower. Does not generally perform well in the East or Midwest. Cold treat or sow outside in fall. Zone 8–10.





276. *Corylus colurna*. Turkish hazel or filbert. Height: 80 feet. A good street tree with symmetrical pyramidal form. Bark distinguished by corky corrugations. Gray-green catkins appear in early spring. After 15–20 years, produces hazel nuts at 2–3 year intervals if planted near a second hazel. Prefers full sun and loamy soil. Can be difficult to germinate. Plant seeds outdoors in fall, or cold treat and plant indoors in early spring. Difficult to transplant. Supplemental watering beneficial for first few seasons, but drought tolerant once established. Zone 4–7.

277. *Cydonia oblonga*. Common quince. Height: to 20 feet. Broadly oval tree with dark green leaves. Profuse pale pink flowers in late spring are followed by pear-shaped yellow fruit in late summer. The edible fruit is widely used for preserves. Thrives in fertile soil. Zone 5–9.

278. *Diospyros virginiana*. Common persimmon. Height: 35–60 feet. Native to eastern and south central U.S. Slow-growing tree with slender, oval-to-rounded crown and symmetrical form. Has lustrous dark green leaves with pale undersides that turn a rich purple in fall. Cream-colored flowers appear in May and June, followed by yellow or orange edible fruit that ripens in fall. Tolerates dry soil and does well in urban conditions. Cold treat, then warm treat to improve germination. Zone 4–9.

279. *Eriobotrya japonica*. Loquat. Height: 15–25 feet. Evergreen fruiting tree native to eastern Asia. Lustrous dark green leaves are felted underneath. Fragrant white flowers bloom in rusty brown, pubescent panicles from November to January. Small, roundish to pear-shaped pomes ripen in late spring, but fruit rarely sets north of Zone 8b. Excellent subtropical specimen tree with exotic look. Zone 7–11.

280. *Halesia monticola*. Mountain silverbell. Height: 60–80 feet. Native to southern Appalachians. Clusters of white to pale pink bell-shaped flowers are borne on pendulous stalks in April and May. Tolerates part shade; prefers slightly acid soil. Seeds may take 2–4 years to germinate. Plant outdoors in fall, or alternate cold and warm treatments indoors. Zone 5–8.

281. *Hibiscus mutabilis*. Confederate rose, cotton rose. Height: to 15 feet. A shrub or small tree with large, lobed leaves. White to pink flowers

up to 6 inches wide bloom midsummer to frost. Performs as an herbaceous perennial north of Zone 7, sending up new shoots each year from its woody base. Zone 7–9.

282. *Hibiscus* sp. Donor unsure of species. Height: 8–12 feet. Donor grows this shrub as a perennial in Zone 5/6, cutting it to the ground in fall. Can also be pruned heavily in spring. New growth bears pink blooms from July through September. Prefers hot weather. Self-sown seedlings can be invasive. Seeds are easy to germinate. Zone 5–8.

283. *Hypericum frondosum*. Golden St. John's-wort. Height: 3–4 feet. Upright to rounded Southeastern native shrub with reddish brown peeling bark and bluish green foliage. Bright yellow 1- to 2-inch-wide flowers bloom in midsummer, followed by small reddish brown capsule fruits. Do not cover seeds. Zone 5–9.

284. *Hypericum* sp. St. John's-wort species. Height: 2½ feet. Compact shrub with small yellow flowers that bloom in midsummer. For culture, see *H. frondosum*. Zone 5–9.

285. *Koeleruteria paniculata*. Panicked golden rain tree. Height: to 40 feet. Spread may exceed height. A dense, broad tree with long, pinnate leaves and showy panicles of loose, yellow flowers in July. Flower clusters can exceed a foot in length. Likes full sun but adapts to a wide range of soil conditions. Self-sows prolifically. To speed germination, it may help to scarify seeds. Warm treat, cold treat, then sow in warm soil. Zone 5–9.

286. *Liriodendron tulipifera*. Tulip tree. Height: 70–90 feet. Fast-growing tree with pyramidal form that matures to a rounded, oval canopy. Has large, lobed leaves and bears greenish yellow flowers from May through early June. Native of eastern and central United States. Prefers full sun and moist, well-aerated, loamy, slightly acidic soil. Cold treat and sow outdoors; taproot development makes tree difficult to move after one year's growth. Zone 4–9.

287. *Magnolia kobus* var. *stellata*. Star magnolia. Height: 15–20 feet with a spread of up to 15 feet. Fragrant, white, star-shaped flowers 3 inches across are tinged with pink. Blooms in early spring before leafing out. Close-set oval leaves give the tree a dense habit. Likes moist, acidic soil in a protected spot. Avoid a southern exposure, which tends to cause early bud break. Cold treat, then sow indoors. Zone 4–9.

288. *M. macrophylla* var. *ashei*. Ashe magnolia. Height: 25 feet. Good small specimen tree, similar to species but with smaller leaves and shrub-like habit. Leaves are bright green above, silvery beneath. Precocious bloomer known to flower when less than a foot tall, its creamy white fragrant flowers open in June. Native from Florida west to Texas, but now rare in the wild. Prefers partly shaded site and moist, loamy soil. Before germination, seeds should be soaked for three days and outer seed coat removed. Cold treat seeds for indoor germination, or plant outdoors in fall. Use soilless potting mix that drains well to avoid seed rot. Zone 6–9.

289. *M. virginiana*. Sweet bay or swamp magnolia. Height: 10–60 feet. Native to the eastern U.S. from Massachusetts to Florida and Texas, sweet bay magnolia is a multistemmed deciduous shrub in the North, but can be an evergreen tree with pyramidal habit in the South. It has 3-

to 5-inch-long elliptical leaves that are dark green above and silvery green below. Scattered creamy white, lemon-scented flowers up to 3 inches wide bloom in May and June. Fruits open to expose bright red seeds in late summer. Cold treat or plant outdoors in fall. Zone 5–10.

290. *Ostrya virginiana*. American hop hornbeam, ironwood. Height: 25–40 feet. A native of eastern North America with drooping or horizontal branches and a rounded habit. Oval to lance-shaped leaves are dark green above, paler and pubescent beneath, with serrated edges. Catkins, usually in threes, form in late fall and remain through winter. The name "hop hornbeam" is derived from its attractive dangling fruits, which resemble the flowers of the hop vine. Warm treat then cold treat, or sow outdoors in fall. Zone 4–9.

291. *Oxydendrum arboreum*. Sourwood. Height: 25–50 feet. Indigenous from Pennsylvania west to Illinois and south to Florida and Louisiana. Pyramidal form with a rounded crown. Fragrant white flowers in long, drooping panicles bloom in June and early July. Lustrous, dark green leaves turn yellow, red, and purple in fall. Prefers acid soil and does poorly in polluted urban settings. Do not cover seeds. Zone 5–9.

292. *Picea meyeri*. Meyer spruce. Height: 60 feet. Conical evergreen native to China with soft, bluish green needles and cones that ripen in late fall. Seeds should be germinated under light. Zone 4–7.

293. *Pieris japonica*. Japanese pieris. Height: 9–12 feet. An upright evergreen shrub with a tidy habit and stiff, spreading branches. Lustrous dark green leaves are highlighted in early spring by fragrant, white, urn-shaped flowers drooping in panicles. Do not cover seeds. Sow on top of milled or screened sphagnum and place under mist or cover with clear plastic. Zone 4–8.

294. *Pinus contorta* var. *latifolia*. Lodgepole pine. Height: 70–150 feet. A tall, narrow evergreen, native to western North America, with slightly twisted yellowish green needles and small, shiny, reddish brown cones. In cultivation it tends to be shorter and bushier with a narrow trunk. Handsome specimen tree. Cold treat then warm treat. Zone 4–8.

295. *P. densiflora*. Japanese red pine. Height: 40–60 feet. Specimen tree distinguished by irregular habit and often crooked trunk. Has bright green twisted needles and 1- to 2-inch cones that stay on the tree for 2–3 years. Prefers acid soil. Cold treat, then warm treat. Zone 3–7.

296. *P. parviflora*. Japanese white pine. Height: 25–50 feet. Salt-tolerant, therefore valuable for seaside plantings. Forms a dense conical pyramid at first, but later develops wide-spreading branches. Has stiff, twisted, blue-green needles. Sow in moist medium and cold treat, then warm treat for best germination. Zone 4–7.

297. *Pseudotsuga menziesii*. Douglas fir. Height: 40–80 feet. Native to Western mountain regions and the Pacific coast, this conifer can reach 200 feet in the wild with a dense, conical shape when young. Blue-green to dark green needles are 1- to 1½-inches long and smell like camphor when bruised. Attractive as an ornamental and is a popular Christmas tree. Zone 5–8.

continued on page 23



# CELEBRATING THE AMERICAN GARDEN 1996



*Mary Engelbreit*

American Horticultural Society  
51st Annual Meeting

St. Louis, Missouri 🍀 May 30 to June 1, 1996



# Program

**MEET US IN ST. LOUIS!** *The Gateway City is the site of the American Horticultural Society's 51st Annual Meeting, "Celebrating the American Garden 1996." Just as Lewis and Clark headed west from St. Louis in 1804 to explore the West, you will use this dynamic city as a springboard for exploring beautiful gardens and new ideas in horticulture.*

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## **THURSDAY, MAY 30**

**11 a.m. to 6 p.m.**

Registration, *Hotel Grand Lobby*

**1 to 5:30 p.m.**

OPTIONAL TOUR:

Gardens around St. Louis

**6:30 p.m.**

Chairman's Reception and Awards Banquet

Presentation of 1996 AHS Awards  
by H. Marc Cathey, President

*Speaker:* Peter Raven, Director,  
Missouri Botanical Garden

## **FRIDAY, MAY 31**

**7 a.m.**

Registration, *Hotel Grand Lobby*

**7:45 a.m.**

Continental Breakfast, *Hyatt Regency Hotel*

**8:30 a.m.**

Buses depart

**9:30 a.m.**

Tour of Monsanto Corporation  
Chesterfield, Missouri

**11:15 a.m.**

Buses depart for  
Luncheon at Old Warson Country Club

*Speaker:* Ann Lovejoy  
"American Mixed Borders"

**2:30 p.m.**

Tour of the Missouri Botanical Garden

**4 p.m.**

Tea with Board of Directors of American  
Association of Botanic Gardens and Arboreta

**4:45 p.m.**

Buses depart for hotel

EVENING FREE TO EXPLORE ST. LOUIS

## **SATURDAY, JUNE 1**

**8:15 a.m.**

Continental Breakfast, *Hyatt Regency Hotel*

**8:45 a.m.**

Plenary Session, *Hotel Ballroom*

**9 a.m. to 12 noon**

Speaker Series, *Hotel Ballroom*

**9 to 9:45 a.m.**

Richard Haag  
"A Nursery of Ideas—in Retrospect"

**9:45 to 10:15 a.m.**

Arthur Tucker  
"Natural Sources of Perfumes"

**10:30 to 11:15 a.m.**

John Fairey & Carl Schoenfeld,  
Yucca Do Nursery  
"The Treasure of the Sierra Madre Oriental"

**11:15 a.m. to 12 noon**

Michael Hayman  
"The Neighborhood Arboretum:  
A Challenge and an Opportunity"

**12:15 p.m.**

Buses depart for Gardens of Ladue  
(box lunches served on bus)

**5:30 p.m.**

Dinner at Ritz-Carlton Hotel, Clayton  
GARDENERS' FORUM  
*AHS Moderator:* Gene Miller

**8:45 p.m.**

Buses return to hotel

## **SUNDAY, JUNE 2**

**10:30 a.m.**

OPTIONAL TOUR: Private Gardens  
around St. Louis

Lunch at Women's Exchange, Ladue

**3:30 p.m.**

Buses return to hotel

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*See you next year in San Francisco April 24 to 26, 1997, at the fabulous Fairmont Hotel on Nob Hill for the 75th Anniversary of the American Horticultural Society!*



# Meeting Highlights

## SPEAKERS



In his role as director of the Missouri Botanical Garden, **Peter Raven** has developed Japanese, Chinese, and English woodland gardens, the Climatron, and the demonstration gardens in the William T. Kemper Center for Home Gardening, which received an AHS award in 1993. Through his leadership, the Missouri Botanical Garden has developed a world-renowned tropical plant research program.



**Ann Lovejoy** is a horticultural writer whose articles have appeared in *American Horticulturist*, *Horticulture* magazine, and the *New York Times*. Her books include the award-winning *The Year in Bloom*, *American Mixed Borders*, *Further Along the Garden Path*, and *The Fragrant Year*, to be published this year. She also writes for several publications in the Pacific Northwest, where she makes her home.



**Richard Haag** is the founder and lead designer of Richard Haag Associates in Seattle, Washington. His creativity, sensitivity to the natural environment, and adaptive re-use of existing structures are expressed in his more than 500 projects. His series of gardens at the Bloedel Reserve near Seattle has been praised as a "landmark of 20th-century landscape architecture."



**Arthur Tucker**, a research professor at Delaware State University, has lectured and published extensively on herbs, heritage plants, and the endangered flora of the Delmarva Peninsula. He has found, propagated, and distributed germplasm for historic restorations of irises, roses, daffodils, and primroses, among others, and has worked with the Nature Conservancy to preserve native flora.



**John Fairey and Carl Schoenfeld** of Yucca Do Nursery in Waller, Texas, have introduced into the commercial nursery trade dozens of plants native to Mexico and the Southwestern United States. They have made more than 60 expeditions into the mountains of northeast Mexico, collecting seeds and cuttings for testing at their nursery. They also donate seeds and plants to arboreta and universities across the country.



**Michael Hayman** could be called the "Accidental Arborist." After a severe storm destroyed hundreds of old trees in his Louisville, Kentucky, suburb, he led a group of volunteers in planting a replacement tree on a traffic island. Soon he was asked by the mayor to organize a replanting program for the entire neighborhood. Through visits to outstanding plantsmen, he obtained rare

and unusual trees and woody plants. Today there are more than 350 of the finest species and cultivars growing in his "neighborhood arboretum."

## GARDEN TOURS

☛ **On Friday**, we will begin our day at the Monsanto Corporation in Chesterfield. We will tour the greenhouses and growth chambers where advances in biotechnology are improving seed, plant, and crop production. Our next stop will be the beautiful Old Warson Country Club for lunch and a lecture by horticultural writer Ann Lovejoy.

After lunch we will have two hours to explore the Missouri Botanical Garden, the oldest botanical garden in the country. We will be on our own to tour and enjoy; trams are available, but will not be reserved for our exclusive use. There will be lots of walking; comfortable shoes are a must!

At 4 p.m., join us for tea in the Spink Pavilion with our honored guests, the board of directors of the American Association of Botanic Gardens and Arboreta. Buses will return us to the hotel by 5:30 p.m., and you will have the evening free to explore the many attractions St. Louis has to offer.

☛ **On Saturday**, we will depart for the Ladue section west of the city to tour five outstanding private gardens, including a prairie with native Missouri grasses and plants, an English garden setting that features a naturalized swimming pool, and a garden selected by the Smithsonian as a definitive 20th-century garden.

Our tour will conclude with dinner at the Ritz-Carlton Hotel in Clayton. A new "Gardeners' Forum"—an exchange of ideas among members and invited guests—will round out the evening, led by AHS Board member Gene Miller.

## OPTIONAL OFFERINGS

☛ **On Thursday**, buses will depart from the Hyatt Regency Union Station at 1 p.m. for garden tours in and around St. Louis. Among the gardens we will visit are a small, formal in-town garden, a private Japanese garden, and a "condo" garden that features clever use of space. We will return to the hotel by 5:30 p.m. The cost is \$75 per person.

☛ **On Friday**, the Opera Theatre of St. Louis, celebrating 20 seasons of international acclaim, will be performing *The Barber of Seville* (in English), Rossini's boisterous comedy that is a hit in opera houses all over the world. We will take a limited number by bus to the show at 6 p.m. Price of \$100 per person includes opera tickets, box supper, and bus transportation to and from the show.

☛ **On Sunday**, join us for a visit to several private gardens including a shade garden "naturescape" with specimen American elms, a new but elaborate wooded garden, and one of the oldest homes in St. Louis with exquisite perennial borders on a small-scale lot. Lunch will be served at the Women's Exchange in Ladue, which houses a boutique of unusual handmade items that will be opened just for us. We will leave the hotel at 10:30 a.m. and return by 3:30 p.m. The cost is \$90 per person.



# Registration

## REGISTRATION FEE

Full registration fee covers all daily programs as listed, registration materials, breakfast and lunch on Friday and Saturday, dinner on Thursday (Awards Banquet and Reception) and Saturday, and ground transportation for tours. Not included are hotel, airfare, personal expenses, or optional tours.

## CANCELLATIONS

A full refund, less \$50 for booking expenses, will be made if written cancellation is received by May 10. No refunds will be made after May 10.

## HOTEL

Our headquarters hotel is the Hyatt Regency St. Louis at Union Station, One St. Louis Union Station, St. Louis, MO 63103, (314) 231-1234 or (800) 233-1234, FAX (314) 923-3971.

Rates for American Horticultural Society members are \$99 per single, \$109 per double. Be sure to mention that you are with the American Horticultural Society and book no later than **May 1** to receive the special meeting rate.

The hotel is part of the historic landmark Union Station, a recently restored example of Romanesque architecture.

## ST. LOUIS ATTRACTIONS

Along the banks of the Mississippi River stands the magnificent Gateway Arch—a reminder of early St. Louis' status as the nation's western gateway. Under the arch is the Museum of Westward Expansion, with displays representing the diverse cultures that shaped the American West. Riverboats still line the waterfront and offer dining and gaming opportunities. Laclede's Landing has restaurants and clubs where top jazz artists perform. Union Station, site of our headquarters hotel, offers more than 120 shops, restaurants, and an indoor lake where paddleboats can be rented.

## ABOUT OUR COVER

The artwork on our program cover was created by St. Louis native Mary Engelbreit. Her richly detailed, warm, and witty designs can be found on products ranging from greeting cards to gifts, stationery, books, and home furnishings. The designs often incorporate horticultural elements—gardens, flowers, trees, garden tools, and gardeners. There are currently five Mary Engelbreit® retail stores with more planned for cities across the country. The American Horticultural Society is grateful to Mary Engelbreit for donating the use of her charming artwork for our cover.

## AHS ANNUAL MEETING REGISTRATION FORM

*Register early! 10% discount for registrations postmarked before March 29.*

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY/STATE/ZIP: \_\_\_\_\_

DAYTIME PHONE: ( \_\_\_\_\_ ) \_\_\_\_\_ AHS MEMBER #: \_\_\_\_\_

SPOUSE/GUEST NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

### Full Registration

	Number of Participants	TOTAL
Includes all non-optional events May 30 evening through June 1 . . . .	\$415	\$ _____

### OR Single Day Registration

<input type="checkbox"/> Thursday, May 30 (Reception and Banquet) . . .	\$ 75 per person	\$ _____
<input type="checkbox"/> Friday, May 31 . . . . .	\$155 per person	\$ _____
<input type="checkbox"/> Saturday, June 1 . . . . .	\$190 per person	\$ _____

### Nonmembers must add annual dues of \$45 per household

Optional: <input type="checkbox"/> Thursday Garden Tour . . . . .	\$ 75 per person	\$ _____
<input type="checkbox"/> Friday Night at the Opera . . . . .	\$100 per person	\$ _____
<input type="checkbox"/> Sunday Garden Tour . . . . .	\$ 90 per person	\$ _____
<input type="checkbox"/> President's Council Membership . . . . .	\$1,000 or more per year	\$ _____

**Subtotal** \$ \_\_\_\_\_

*Minus discount (10%) prior to March 29, 1996* \$ \_\_\_\_\_

**Total Enclosed** \$ \_\_\_\_\_

Special Services Needed (please specify by May 1): \_\_\_\_\_

**Please make check payable to American Horticultural Society and return with this form to: AHS Annual Meeting, 7931 East Boulevard Drive, Alexandria, VA 22308-1300. For more information, call (800) 777-7931.**



# 1996 Seed Catalog

continued from page 18

298. *Rhododendron macrophyllum*. Western rhododendron, California rosebay. Height: to 15 feet. Native to the maritime Pacific Northwest, this rangy rhodie bears large clusters of bell-shaped rose to purple flowers with reddish brown spots. Blooms in May to June. Do not cover seeds. Zone 7-9.

299. *Rosa rugosa*. Mix of rugosa or saltspray rose selections. Height: 5-8 feet. A mixture of seeds from plants with double and semidouble white, pink, and magenta flowers. A sturdy shrub with upright stems, native to eastern Asia. Produces fragrant flowers on new wood from late spring to fall; bright red hips form in late fall against dark green foliage. Tough plant useful for slopes and harsh conditions, including seashores, but can spread into natural areas. Cold treat. Zone 2-7.

300. *R. rugosa* 'Alba'. Rugosa or saltspray rose cultivar. Height: 6-8 feet. Similar to species but with single white flowers. For culture, see *R. rugosa*. Zone 2-7.

301. *R. rugosa* 'Rubra'. Rugosa or saltspray rose cultivar. Height: 6-8 feet. Similar to species but with single magenta flowers. For culture, see *R. rugosa*. Zone 2-7.

302. *R. villosa*. Apple rose. Height: 1 1/2-6 feet. Deciduous, bushy habit. Bears 2- to 3-inch pink to almost red flowers. Red fruits are used for cooking and making beverages. Cold treat. Zone 4-8. Limited quantity available.

303. *Simmondsia chinensis*. Jojoba, goatnut. Height: 3-10 feet. A dense, rigid-branched, spreading evergreen shrub native to our desert Southwest, California, and Mexico. Has dull gray, leathery leaves and inconspicuous flowers. Female plants bear bitter, but edible, nutlike fruit used as source of jojoba oil. Zone 9-11.

304. *Stewartia malacodendron*. Silky stewartia. Height: 10-18 feet. A native of the Southeastern coastal plain, silky stewartia ranges from a large shrub to a small tree. Large white flowers with purple to blue centers bloom in late summer. Gray to brown bark is not as attractive as that of other stewartias. Zone 7-9.

305. *S. ovata* cultivars. Mix of seeds from mountain stewartia cultivars 'Red Rose', 'White Satin', and 'Royal Purple'. Height: 10-15 feet. A dense, upright tree with generally pyramidal form. Ideal as a small ornamental. Large flattened red, white, or purple flowers with yellow stamens in the center open in July. Dark green leaves turn red and purple in the fall. Flaking, gray to orange-brown bark provides winter appeal. Germination is difficult and may be best left to natural outdoor temperature cycles. Zone 5-9.

306. *Styrax japonicus* 'Pink Chimes'. Japanese snowbell cultivar. Height: 20-30 feet with an equal or greater spread. A small, rounded tree with distinctive, low, wide-spreading branches. Leaves are pointed ovals. Pink, bell-shaped flowers are borne on a pendulous stalk in May and June. Prefers a sheltered site in full or part sun and moist, neutral to acid soil. Difficult to germinate. Warm treat, cold treat, then repeat the cycle. Zone 5-8.

307. *Thuja occidentalis*. Eastern arborvitae, white cedar. Height: 30-50 feet. A dense, pyramidal evergreen with short, ascending branches and tiny, aromatic, scalelike leaves that are bright green above and pale green beneath. This native of eastern North America is useful as a specimen or for hedges and windbreaks. Zone 2-8.

308. *Viburnum dentatum*. Arrowwood. Height: 6-15 feet. Easy to grow, upright, multistemmed viburnum with spreading, arching branches and dark green, oval, coarsely serrated leaves. Fall color ranges from yellow to reddish purple. Cream-colored flowers bloom in May in 2- to 3-inch-wide, flat-topped cymes. Oval to rounded blue to black fruits that ripen in fall are popular with wildlife. Tolerant of damp soils. Difficult to germinate. Cold treat, allowing root system to develop, then warm treat. Zone 3-8.

309. *Vitex agnus-castus*. Chaste tree. Height: 10-20 feet. Deciduous, aromatic shrub. Dark green leaves have velvety gray hairs underneath. Fragrant, pale lilac flowers in 7-inch spikes make a spectacular show in late summer. Attracts butterflies. Easy to germinate. Self-sows prolifically. Zone 7-8.

## HERBS

310. *Agastache foeniculum*. Anise hyssop. Height: 3 feet. Perennial native of Midwestern prairies and dry woods. Bears spikes of blue flowers and large leaves, green above and white below. Can be sown outdoors in early spring or cold conditioned and started indoors. Use organic medium for best results. Zone 7-8.

311. *Agrimonia eupatoria*. Agrimony. Height: 3 feet. A perennial native to parts of Europe, Africa, and Asia. Upright stalks bear 6-inch-long, oblong, serrated leaves and small yellow flowers on spikes. Seeds develop in prickly burrs. Leaves used to produce astringent gargle, among other uses. Drought tolerant. Zone 3-8.

312. *Allium tuberosum*. Garlic chives. Height: 20 inches. Hardy perennial. Flat leaves have a delicate garlic flavor. Striking white flowers in late summer and early fall. Somewhat invasive. Zone 3-10.

313. *Anethum graveolens* 'Mammoth'. Dill cultivar. Height: 2-3 feet. Fast-growing annual with large yellow flower heads and feathery greenish blue leaves. The entire plant is aromatic. Indispensable for salads, sauces, soups, and fish. Sow in warm soil.

314. *Angelica archangelica*. Angelica. Height: to 5 feet. Biennial. Umbels of small greenish white flowers appear in midsummer. The large, 3-part leaves can be cooked as a vegetable. Young stems and petioles are sometimes candied. Prefers moist soil and cool temperatures. Will tolerate some shade. Sow outdoors in late fall or indoors after refrigerating seed for 6-8 weeks. Zone 4-10.

315. *Angelica* sp. Angelica. Donor unsure of species. Height: 3 1/2 feet. Long stalks bear compound leaves and clusters of small white flowers on umbels. This biennial usually dies after producing a crop of seeds, but its life may be extended by harvesting flower stalks before seeds are produced. Stems are candied and the leaves

used as greens. For culture, see *A. archangelica*. Zone 4-10.

316. *Anthriscus cerefolium*. Chervil. Height: 1-2 feet. A hardy annual or biennial with light green, parsleylike leaves and tiny white flowers in clusters. Has a flavor similar to parsley but with a touch of licorice. Used in salads, soups, stews, and in combination with other spices. Plant seeds outdoors in spring.

317. *Chenopodium ambrosioides*. Wormseed, Mexican tea, epazote. Height: 3-4 feet. Annual or short-lived perennial native to tropical Americas but widely naturalized elsewhere. Tall, erect plant with 5-inch-long, lance-shaped, deeply serrated leaves and insignificant green flowers. Bears small dry fruits in summer. Leaves are used to season soups, stews, and other dishes. The name "wormseed" was derived from the use of an extract to repel intestinal worms. The extract and raw fruit are poisonous in quantity. Do not cover seeds. Zone 9-11.

318. *Coriandrum sativum*. Coriander. Height: 1-3 feet. Annual. Small umbels of white, rose, or lavender flowers in summer. Both the seeds and the finely divided foliage are used as seasoning.

319. *Cynara cardunculus*. Cardoon. Height: 6-8 feet. A thistlelike artichoke relative with spiny gray-green leaves, white and hairy beneath, and purple flowers. Young leaves and stalks are edible when blanched. Zone 6-10.

320. *Foeniculum vulgare*. Fennel. Height: 3-5 feet. Perennial or biennial usually grown as an annual. Upright, with feathery gray-green foliage and large umbels of yellow-green flowers. These should be removed as they fade to prevent self-seeding. Fennel is considered invasive in Virginia and California. Licorice-flavored seeds are used in cooking. Stalks are usually eaten blanched.

321. *F. vulgare* 'Purpurascens'. Bronze fennel cultivar. Height: to 4 feet. Stems and leaves of this cultivar are flushed maroon in early growth and turn bronze-green as the plants mature. For culture, see species.

322. *F. vulgare* var. *azoricum* 'Bronze'. Florence fennel cultivar. Height: to 6 feet. Perennial usually grown as an annual. Similar to species, but with bronze-tinged foliage. For culture, see species.

323. *F. vulgare* var. *azoricum* 'Zefa Fino'. Florence fennel cultivar. Has a smaller bulb than the species and is more resistant to bolting. For culture, see species.

324. *Hedeoma pulegioides*. American pennyroyal. Height: 6-8 inches. Annual. Multiple-branched stems give the plant a shrubby appearance. Small bluish purple flowers appear in summer. Said to repel insects. Crushed leaves may be rubbed on the skin to ward off mosquitoes. Sometimes strewn in doghouses to keep down fleas, or used in sachets to keep moths from woolens. Also used as a tea. Will tolerate some shade. Does best in poor soil; rich soils diminish its aromatic properties. Seedlings should be thinned to 4-6 inches apart.

325. *Hyssopus officinalis* 'Alba'. Hyssop. Height: 1 1/2-2 feet. A shrubby perennial evergreen with square stems and aromatic dark green leaves. White flowers bloom on 2- to 5-inch spikes in late summer. Various medicinal



uses are documented. Tolerates some shade and prefers limy soil. Zone 4–9.

**326. *Levisticum officinale*.** Lovage. Height: 2–6 feet. A perennial reminiscent of celery but with a stronger flavor. Fibrous fleshy stalks are topped with serrated gray-green foliage. Small creamy flowers yield seeds that can be used like celery seed. Stalks and foliage are used in soups, stews, and raw in salads. Needs moist soil. Can be sown outdoors in the fall. Zone 4–8.

## SAVE THIS CATALOG!

**327. *Matricaria recutita*.** German chamomile, sweet false chamomile. Height: to 2 feet. This clump-forming annual, native to Europe and Asia, has feathery foliage and inch-wide, daisy-like flowers. It shares both the appearance and some of the medicinal and herbal properties attributed to perennial chamomile (*Chamaemelum nobile*). A soothing tea is made from the flowers.

**328. *Melilotus alba*.** White sweet clover. Height: 3–10 feet. A biennial, usually grown as an annual. A w **SORRY, NOT AVAILABLE** own as a green nt. Will flower its first year. Not particular about soil.

**329. *Melissa officinalis*.** Lemon balm. Height: 2½ feet. A hardy perennial that forms thick clumps of deep green, heart-shaped leaves with a citrus fragrance. Yellow flower buds open into white flowers in late summer. Needs part shade and prefers moist, somewhat sandy soil. Do not cover seeds. Zone 4–9.

**330. *Monarda citriodora*.** Lemon mint, lemon bergamot. Height: to 2 feet. Annual native to Appalachians and central U.S. Hairy, narrow leaves and purplish flowers are lemon scented, although not all seedlings inherit the scent. Attracts bees. May not flower until second year.

**331. *Myrrhis odorata*.** Sweet cicely. Height: 2–3 feet. This perennial is distinguished by highly divided, fernlike leaves that give off an odor akin to anise when crushed. Tiny white flowers bloom in umbels from spring to early summer. Fruits, shaped like elongated, ribbed footballs, are green at first then turn black as they ripen. The green anise-flavored seeds are eaten raw, sprinkled on salads, or used to flavor vinegars and liqueurs. Fresh leaves are also used in cooking. Fresh seeds germinate best. Sow outdoors in fall or cold treat. Zone 3–9.

**332. *Nigella sativa*.** Black cumin, nutmeg plant. An annual herb with branching linear stems and feathery **SORRY, NOT AVAILABLE** flowers yield o can be sprinkled on bread and cakes, or ground and used as a seasoning. Tolerates part shade.

**333. *Ocimum basilicum*.** Sweet basil. Height: 1–2 feet. Annual. Bright green foliage and tiny, whorled, white flowers. Aromatic herb used in Italian cuisine. Pinch back new leaves and flower buds to produce more growth and a bushier habit. Prefers a warm location with moist, well-aerated soil.

**334. *O. basilicum* 'Citriodorum'.** Lemon basil. Sweet basil cultivar. Height: 18–24 inches. Annual. Lemon-scented basil with white blossoms on terminal spikes. The entire plant is gathered for drying because leaves are sparsely distrib-

uted. Used in Asian cuisines. For culture, see species.

**335. *O. basilicum* 'Fino Verde'.** Italian basil cultivar. Height: 1–2 feet. Annual. Similar to species but with smaller, more prolific, leaves. For culture, see species.

**336. *Petroselinum crispum* var. *neapolitanum*.** Italian parsley, flat-leaf parsley. Height: to 3 feet. Biennial used as an annual. Dark green leaves are only slightly curly and have a stronger flavor than common parsley. Prefers part shade. Soak seeds in lukewarm water for 24 hours before sowing. Zone 3–9.

**337. *Salvia officinalis*.** Broad-leaf sage. Height: 2–2½ feet. Shrubby perennial with oblong, woolly, gray leaves and violet-blue flower spikes. Abundant source of culinary sage. Prefers slightly alkaline, sandy soil. Zone 4–8.

**338. *Satureja hortensis*.** Summer savory. Height: 1–1½ feet. Low-growing annual with narrow, dark green leaves and reddish stems. Pink flowers develop in leaf axils. Can become top-heavy and require support. Used fresh or dried as flavoring.

## VEGETABLES

**339. *Abelmoschus esculentus* 'Clemson Spineless'.** Okra. This easy-to-grow cultivar takes 55 to 65 days to maturity. Can be started indoors, or sown outdoors after last frost when ground warms up.

**340. *Allium cepa* 'Red Simiane'.** Onion cultivar. A sweet onion, with purple-red, elongated bulbs. Maturation time not specified. Needs light, fertile, deep soil. Plant ¼ inch deep in warm soil. Can be sown in fall south of Zone 7.

**341. *Apium graveolens*.** French celery dinant. Height: to 3 feet. Described as a French cutting celery, this biennial is used to flavor soups, stews, and other dishes. It has a thick, edible, turniplike root that sends up a multitude of thin stalks with serrated leaves. Grows best in moist but well-aerated soil; tolerates light frost. Cut individual stalks as needed. Sow seeds in late winter for spring planting or in late summer for fall planting.

**342. *Atriplex hortensis* 'Cupreata'.** Orach, red mountain spinach. Height: to 6 feet. An annual with arrowhead-shaped leaves, grown for greens and for ornament. This cultivar has coppery red foliage and stems. Young leaves can be used fresh in salads; older leaves are blanched for use in soups or as greens. Sow outdoors in early spring.

**343. *Beta vulgaris*.** Lutz beet. An especially hardy German heirloom variety of beet that overwinters in Zone 7. Luscious greens and super-sweet flesh that doesn't get fibrous with age. Sow outdoors covered with a fine layer of soil.

**344. *Brassica juncea*.** Red India mustard. A native of India with deep purplish leaves that have a white midrib. A fast grower with a pungent flavor that adds spice to salads. Will produce greens throughout the growing season, but needs part shade in midsummer. Can be started indoors or planted outdoors in late winter.

**345. *B. juncea*.** Spinach mustard. Height:

10–12 inches. Thick glossy leaves are spicy and crisp and can be eaten raw. Pick them when they're 3–4 inches long. Productive throughout the growing season. Can be used as a winter crop south of Zone 7.

**346. *B. napus*.** Siberian kale. Height: to 3 feet. Upright plant with frilly, reddish purple veined leaves and yellow-orange flowers. Matures in 50 days. Can be used as a winter crop south of Zone 6.

**347. *B. oleracea*.** Flowering kale, ornamental kale. Height: 10–15 inches. This attractive plant does double duty as an ornamental for the border and as a vegetable. Blue-green leaves form a rosette above a short stalk. Center leaves are white, tinged with pink or purple. Color intensifies with cooler weather in fall. Leaves are edible at any time, but are more flavorful when young. Start seeds indoors in late winter and transplant outdoors after hardening off, or sow seeds in midsummer for fall crop. Does not tolerate hot summers well.

**348. *B. rapa* 'Purple Top White Globe'.** Turnip cultivar. Crisp roots and delicious greens distinguish this fast-growing turnip that takes 40–60 days to reach maturity. Sow outdoors in late winter and stagger sowings into early summer. Begin sowing again in late summer for fall crop.

**349. *Capsicum annuum*.** Sweet Italian pimienta to pepper. Height: 2–2½ feet. An heirloom Italian pepper variety grown by a Washington State family for more than four generations, known as "Figaro Sweet Italian Pimiento." The flattened, scalloped fruits ripen to a deep crimson. The sweet, crunchy peppers are ideal for eating fresh. Start seed indoors and set outdoors when nighttime temperatures are above 50 degrees.

**350. *C. annuum* 'California Wonder'.** Sweet pepper cultivar. Yields sweet, round, green bell peppers. Matures in 120 days. Sow in warm soil. Plant 18–24 inches apart.

**351. *C. annuum* 'Jigsaw'.** Hot pepper cultivar. Height: 1½ feet. A shrubby, open-pollinated ornamental pepper with purple-and-white foliage and small hot peppers. Start indoors and set outdoors when nighttime temperatures are above 50 degrees.

**352. *C. annuum* 'Super Chili'.** Chili pepper cultivar. Shrubby plant bears 2½-inch, very hot, cone-shaped peppers that start out green and ripen to bright red. Good for salsa or cooking. Matures in 120 days. Because it's so decorative, this pepper is often grown in containers and brought indoors before frost. Needs plenty of moisture. Sow in warm soil.

**353. *C. annuum* 'Yellow Belle'.** Pepper cultivar. An early pepper with bright yellow skin that ripens to bright red. Matures in 65 days. Start indoors and set outdoors when nighttime temperatures are above 50 degrees.

**354. *Cucumis melo* 'Alaska'.** Melon cultivar. Fast-maturing melon good for northern gardens. Fruits have creamy yellow netted skin that turns reddish orange when ripe. Apricot-colored flesh is moist and sweet. Matures in 70 days. Start indoors in peat pots, or sow outdoors when soil reaches 60 degrees.

**355. *C. melo* 'Green Nutmeg'.** Melon. Extra early, slightly oval melon with ribbed, heavy, net-



red skin. Super-sweet flesh is light green with salmon-colored center. Matures in 62 days. Sow outdoors when soil gets warm. If sowing indoors, use peat pots to minimize transplant shock.

356. *C. melo* 'Iroquois'. Iroquois muskmelon. A classic orange-fleshed melon with delicious flavor that can attain a weight of 3–4 pounds. Adapted for growth in northern gardens. Matures in 90–120 days. Start indoors in peat pots, or sow outdoors when soil reaches 60 degrees.

357. *C. sativus* 'Orient Express'. An Asian variety of slicing cucumber with dark green fruits that average 10 inches long and an inch thick. Small seed cavity and mild taste. Vines grow to 8 feet. Disease resistant. Matures in 64 days. Can be started indoors in peat pots or sown outdoors after danger of frost has passed.

358. *C. sativus* 'Slice Master'. Slice master cucumber. A smooth, mild-flavored, dark green cucumber with white markings. Matures in 55 days and produces a heavy yield. Sow 1 inch deep outdoors when soil warms up. Keep soil evenly moist during germination.

359. *C. sativus* 'Straight Nine'. Cucumber cultivar. Very uniform, dark green 9-inch fruit. Mildew tolerant. Matures in 65 days.

360. *Cucurbita maxima*. Spaghetti squash. This yellow-skinned winter squash has orange-yellow fibrous flesh that when cooked resembles strands of spaghetti. Sow seeds in mounds at least 4 feet apart after danger of frost has passed.

361. *C. maxima*. Boston marrow squash. An heirloom variety from Old Sturbridge Village in Sturbridge, Massachusetts, this orange- to red-fleshed winter squash grows to 12–14 pounds. Does best in loamy or sandy soil. Plant outdoors after soil warms, or start indoors in peat pots and transplant in spring. Plant in mounds at least 4 feet apart.

362. *C. maxima* 'Rouge Vif d'Etampes'. Pumpkin cultivar. A gourmet French cultivar that produces decorative orange-red pumpkins about 6 inches high and 18 inches in diameter with bumpy, shiny skin and narrow, deep-ribbed sections. Matures in 100–120 days. Sow outdoors after danger of frost has passed.

363. *C. pepo*. Turner Family Original pumpkin. An heirloom variety raised by donor's family in western Pennsylvania for more than 100 years. Produces sweet-fleshed, slightly flattened pie pumpkins that weigh 5–10 pounds. Dark orange ribbed pumpkin with a hard rind that keeps well through the winter. Vines are vigorous and profuse. Matures in 100–120 days. Can be sown outdoors in long growing season; otherwise, start indoors in peat pots.

364. *C. pepo* 'Delicata'. Winter squash cultivar. A round tan squash with a dark green stripe. Squash weigh up to 1 1/2 pounds with a color and flavor reminiscent of sweet potato. Matures in 95 days. Sow seeds in mounds after danger of frost has passed.

365. *C. pepo* 'Jack o' Lantern'. Pumpkin cultivar. Delicious in pies and breads. Seeds make tasty snack. Matures in 100–110 days. After soil warms up, sow outdoors in mounds 3–4 feet apart.

366. *C. pepo* 'Table Ace'. Winter squash cultivar. Vigorous, compact plants set heavy crops of dark green, acorn-shaped squashes with bright orange flesh. Matures in 75 days. Sow in mounds 3 feet apart.

367. *Cucurbita* sp. 'All Seasons'. Hybrid bush squash. Height: 3 feet. Compact, upright bush bears 5–8 fruits that can be harvested young and cooked like summer squash, or allowed to mature for winter use. Somewhat oval, bright orange fruits have mild nutty flavor and can weigh up to 3 pounds. Matures in 90 days.

368. *Daucus carota* var. *sativa* 'Fly Away'. Carrot cultivar. A new hybrid carrot bred for resistance to carrot flies. These medium-long 'Nantes' type carrots have excellent flavor. Matures in 72 days. Needs rich, well-worked soil. Several sowings can be made to prolong the bearing season. Seedlings should be thinned to 2 inches apart. Soil should be mounded slightly around the crown to prevent the carrot tops from turning green.

369. *Eruca sativa*. Arugula, salad roquette. A leafy lettuce-like plant popular for the spicy, peppery flavor of its leaves, which perk up salads or sandwiches. Matures in 30 days. Start sowing seeds in early spring as soon as the ground can be worked and reseed every two weeks to ensure an ongoing supply. Tends to bolt in heat of summer, but start sowing again in late summer for fall crop.

370. *Lactuca sativa* 'Green Towers'. Romaine lettuce cultivar. Height: to 12 inches. Large, full-bodied heads of gray-green leaves. Matures in 74 days. Lettuces require a moist, sandy loam and prefer cooler temperatures. They are often resown in late summer for fall crops. In the South they can be grown as winter crops. Do not cover seeds.

371. *L. sativa* 'Merveille des Quatre Saisons'. Lettuce variety. French Bibb-type lettuce produces reddish leaves with cranberry-colored tips

and a pale green heart. Matures in 60–70 days. Part shade in hot weather will reduce bolting. Prefers well-aerated, loamy soil. For culture, see *L. sativa* 'Green Towers'.

372. *L. sativa* 'Salad Bowl'. Lettuce cultivar. A loose-leaf lettuce with a slightly sweet flavor and crisp texture. Matures in 45–50 days. For culture, see *L. sativa* 'Green Towers'.

373. *L. sativa* 'Valmaine Cos'. Romaine lettuce cultivar. Ideal salad lettuce with an 8- to 10-inch upright head. Outside leaves are dark green and interior leaves are pale and crinkled. Matures in 78 days. For culture, see *L. sativa* 'Green Towers'.

374. *Lagenaria siceraria*. Hard-shell gourds. A mixture of hard-shell gourds, including dipper gourds and spoon gourds, that have a long, narrow "handle" attached to a globular base. Mature in 90–120 days. Plant outdoors after soil warms, or start indoors in peat pots and transplant in spring. Plant in mounds at least 5–8 feet apart. Gourds can be grown on trellises.

375. *Lepidium sativum*. Curly cress. An unusual but tasty salad green with light green, ruffled, parsleylike leaves that have a clean, peppery tang. Matures in 25 days. Cool-season crop. Sow seeds outdoors as early as soil can be worked and resow at two-week intervals until weather gets hot. Begin resowing in late summer for fall crop.

376. *Luffa* sp. Luffa, dishcloth gourd. Vigorous, nonwoody vine to 15 feet. Young gourds may be cooked like squash, but mature 12- to 18-inch cylindrical gourds can be harvested as sponges. Matures in 110 days. Sow outdoors after danger of frost has passed.

377. *Lycopersicon lycopersicum* 'Husky Cherry Red'. Cherry tomato cultivar. Height: 4 feet. An early cherry tomato that produces 1-inch red fruits in 65 days.

378. *L. lycopersicum* 'Mamma Mia'. Tomato cultivar. A new disease-resistant and high-yielding cultivar that is delicious fresh and an exceptionally good meaty tomato for making sauces. Pear-shaped fruit matures in about 62 days.

379. *L. lycopersicum* 'Snowball'. Tomato cultivar. An unusual tomato with creamy translucent flesh. Produces 10-ounce fruits with a mild flavor. Matures in 80 days.

380. *Phaseolus coccineus*. Scarlet runner bean. Long, twining vines produce bright scarlet flowers and can be trained up trellises or other structures. Beans can be picked immature as string beans or fully mature as shell beans. Matures in 65 days. Requires a loamy soil. Sow 1 inch deep at 6-inch intervals after danger of frost has passed. Water at the base of the plant to prevent mildew from attacking the leaves.

381. *P. vulgaris* 'Jacob's Cattle'. Bush bean heirloom cultivar. High-yielding, low-growing bushes produce creamy white beans speckled with red. Dry beans are used for baking and in soups; picked young they can be eaten like green beans. Matures in 85 days.

382. *P. vulgaris* 'Louisiana Purple Pod'. Snap pole bean cultivar. Gorgeous purple flowers and pods, yielding large quantities of light brown beans. Delicious raw or cooked. Matures in 70 days. This bean is often trained up corn stalks.







383. *P. vulgaris* 'Selma Zebra'. Pole bean cultivar. Height: to 6 feet. An early snap bean that produces medium-size green pods striped with purple that turn completely green when cooked. Beans are light brown with black stripes. A vigorous climber that requires staking. Matures in 65–75 days. Easy to germinate either outdoors after frost or indoors in peat pots.

384. *P. vulgaris* 'White Greasy Grit'. Snap pole bean cultivar. Height: to 10 feet. Fast-growing vine produces a heavy load of 6-inch pods tightly packed with white beans. These have a nutty flavor and can be used either as snap or dry beans. Matures in 80 days. Definitely needs staking.

385. *P. vulgaris* 'White Papadi'. Pole bean cultivar. Height: 10–15 feet. Needs support, but beautiful white flowers make it decorative on trellises and arbors. Donor calls it prolific and drought resistant. Matures in 80–100 days.

386. *Pisum sativum* var. *macrocarpon*. Sugar snap pea. Winner of the All-America Selections gold medal in 1979. The entire pod can be eaten and is delicious, tender, and crisp when young. Matures in 70 days.

387. *P. sativum* var. *macrocarpon* 'Dwarf Green Sugar Pea'. Pea cultivar. 2- to 3-inch pods on 3-foot vines. Pods should be picked before they swell. Matures in 65 days. Peas do best in a cool, moist situation. Stagger plantings at 2-week intervals from last frost through early summer.

388. *P. sativum* var. *sativum* 'Little Marvel'. Pea cultivar. Height: 15–20 inches. Fresh peas have sweet delicate flavor and may be frozen or canned. Matures in 55–70 days.

389. *P. sativum* var. *sativum* 'Wando'. "Petit pois" pea cultivar. Small pea pods are filled with tiny supersweet peas that are excellent eaten fresh, or canned or frozen. Growth can be stimulated by use of trellises or stakes. Matures in 55–65 days.

390. *P. sativum* var. *sativum* 'Waverex'. Pea cultivar. A high-yielding pea variety that produces medium-large, dark green peas. Growth can be stimulated by use of trellises or stakes. Matures in 70 days.

391. *Raphanus sativus*. Daikon, Japanese radish. An early Daikon radish that matures in 40 days. Elongate, white radish with spicy, crisp

flavor. Seeds should be sown outdoors and staggered for continuous harvest. Keep soil constantly moist.

392. *R. sativus*. White radish variety. Donor unsure of variety. Tuberlike white roots can be used as a garnish or eaten fresh. Matures in 30 days. Seeds should be sown outdoors and staggered for continuous harvest.

393. *R. sativus* 'Fluo'. Fluo radish. A crisp and pleasantly pungent, elongated red radish with a white tip. Matures in 20–30 days. Prefers soil that is consistently moist but not waterlogged. Sow seeds 1/2 inch deep outdoors in early spring. Tolerates crowding.

394. *R. sativus* 'Red Prince'. Radish cultivar. A scarlet, almost spherical radish with white flesh that is crisp and mild flavored. Resists fusarium wilt. Matures in 23 days. Sow outdoors in moist, rich soil after last frost.

395. *R. sativus* 'Sparkler White Top'. Radish cultivar. Easy, fast-growing radish that matures in 20–30 days. **SORRY, NOT AVAILABLE** Matures in 20–30 days. Sow outdoors from late winter through mid-spring and then again beginning in late summer.

396. *Rheum rhabarbarum* 'Victoria'. Rhubarb. Height: 2–3 feet. Rhubarb is a perennial that grows in clumps of ruffled red or green leaves held on celerylike stalks. The stalks are edible and are commonly used to make jellies and pies. **The leaves are poisonous and should not be eaten.** This cultivar has deep red stalks. Rhubarb is a cold-season crop that requires at least two months of cold weather to mature. It takes about two years to get a crop from seed. Sow seed indoors in late winter and transplant outdoors after hardening off in early spring.

## VEGETABLE SEED MIXES

397. *Brassica oleracea*. Mixed cabbage varieties. A mix of 10 cabbage varieties, including early, late, round, flat, red, and green types. Require part shade in hot climates and moist soil. Will bolt during hot weather. Start seed indoors, then harden off and transplant outdoors around last frost date.

398. Jung's Gourmet Salad Blend. A combination of four gourmet lettuce cultivars: 'Black Seeded Simpson', 'Grand Rapids', 'Prizehead', and 'Buttercrunch'. For culture, see directions for other lettuces.

399. Jung's Salad Blend. A combination of 'Prizehead' and 'Plato II' lettuces, kale, endive, rhubarb, Swiss chard, and mustard. Described as a complete salad in a single packet. For culture, see directions for similar varieties.

## WILDFLOWER MIXES

400. General Purpose Mix. This mixture of annuals, biennials, and perennials is designed to suit all hardiness zones in the lower 48 states. At least 6 hours of sun are necessary. Included are baby's-breath (*Gypsophila paniculata*), black-eyed Susan (*Rudbeckia* sp.), catchfly (*Silene* sp.), prairie coneflower (*Ratibida columnifera*), lance-leaved coreopsis (*Coreopsis lanceolata*), calliopsis

(*C. tinctoria*), oxeye daisy (*Leucanthemum vulgare*), common evening primrose (*Oenothera biennis*), dwarf evening primrose (*O. missouriensis*), blue flax (*Linum perenne*), California poppy (*Eschscholzia californica*), wallflower (*Erysimum hieracifolium*), and others.

## 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.

401. Midwest Mixture. A mix of annual, perennial, and biennial wildflowers for Illinois, Indiana, Iowa, eastern Kansas, Kentucky, Michigan, Minnesota, Missouri, eastern Nebraska, Ohio, Wisconsin, southern Manitoba, and Ontario. Included are asters (*Aster* spp.), bachelor's button (*Centaurea cyanus*), lance-leaved coreopsis, calliopsis, dame's rocket (*Hesperis matronalis*), candytuft (*Iberis umbellata*), scarlet-flowering flax (*Linum grandiflorum* 'Rubrum'), dwarf evening primrose, purple prairie clover (*Petalostemum purpureum*), and others.

402. Southwest Mix. A mix of wildflowers suitable for Arizona, Southern California, southern Nevada, and New Mexico. Included are Tobacco daisy (*Machaeranthera tanacetifolia*), farewell-to-spring (*Clarkia unguiculata*), cornflower (*Centaurea* sp.), prairie flax (*Linum perenne* subsp. *lewisii*), flowering flax (*Linum grandiflorum*), penstemon (*Penstemon strictus*), California poppy, corn poppy, tidy-tips (*Layia platyglossa*), yarrow (*Achillea* spp.), and others.

## GREENHOUSE

North of Zone 9, these plants must be grown in a greenhouse.

403. *Caryota* sp. Fishtail palm. Height: 4–50 feet. Tropical palm tree that cannot be grown outdoors north of Zone 10. Height is variable depending on location. Typically gets solitary trunk with triangular, fishtail-shaped compound leaves. Flowers only once, after many years of growth. Tolerates part shade. Prefers soil that is an equal mix of peat and sand. Will not tolerate sustained temperatures below 60 degrees.

404. *Mimosa pudica*. Sensitive plant, mimosa. Height: 2–3 feet. A small, shrubby plant with pinnately compound leaves formed of 12 to 25 pairs of tiny oblong leaflets. The leaves close up and jointed stems fold when the plant is touched. Exotic-looking pink to lilac flower heads bloom on upright stalks. This native of the American tropics has become widely naturalized in tropical areas worldwide. Not hardy north of Zone 9, it can be grown in the greenhouse or as a house plant, or can be used as an uncommon annual in the border.

405. *Puya mirabilis*. Puya. Height: 18–24 inches. A member of the bromeliad family with evergreen, swordlike, spiny margined leaves that form a basal rosette. White to green bell-shaped flowers bloom from an erect stalk that grows from the center of the leaves. Tolerates poor, rocky soils and dry conditions. Native to South America, this plant is useful for rock gardening south of Zone 10, or can be grown in a greenhouse. Sow in soilless mix. Do not cover seeds.





# ORDERING INFORMATION

## HOW TO ORDER

- ♦ List selections by number only.
- ♦ Attach the mailing label from this issue or fill in your name, address, and member number from the top left-hand corner of the mailing label. Your order will be shipped faster if you include your member number on the order form.
- ♦ In case our supply of your first-choice seed packets has been depleted, please be sure to list substitute selections in the space provided on the order form.
- ♦ To increase your chances of getting your first-choice selections, please mail us your order form as soon as possible.
- ♦ The deadline for ordering seeds is May 1, 1996. Orders postmarked after that date will not be filled.
- ♦ Keep this catalog! You will need it to identify the seeds you receive. Seed packets are identified only with the numbers that appear in this catalog. Replacement copies of the catalog are \$3 each.

## VOLUNTARY CONTRIBUTIONS

While seeds offered in this annual exchange are free to our members, we do request a voluntary contribution to help defray postage and handling costs.

We request a minimum of \$3 if you are ordering 10 packets of seeds, and \$4 if you are ordering 15 packets of seeds.

## BONUS SEEDS

Additional contributions to the Seed Exchange Program help support student interns who assist with coordinating it. These funds also allow us to mail surplus seeds to schools and other nonprofit groups. Members who donate \$10 or more to the Seed Exchange Program when they order will receive four bonus seed varieties as a thank-you. This year's bonus seeds, from Harris Seeds and The Fragrant Path, are:

- ♦ *Cosmos bipinnatus* 'Purity'. Cosmos cultivar. Height: 3-4 feet. A rounded plant

with finely textured, feathery foliage and flat, open, white daisylike flowers. Blooms early summer to frost. Drought tolerant. Sow in warm soil. Self-sows.

♦ *Gypsophila* 'Garden Bride'. Gypsophila cultivar. Height: 10-12 inches. A compact, bushy, fast-growing plant with tiny, pale pink flowers above finely divided, airy foliage. Blooms in late summer. Do not cover seeds.

♦ *Tagetes patula* 'Royal King'. French

marigold cultivar. Height: 14 inches. A vigorous marigold that produces abundant yellow and red flowers up to 3 inches in diameter. Excellent for the middle of the summer border.

♦ *Lycopersicon lycopersicum* 'Primetime'. Tomato hybrid. A superior late-season tomato with large, smooth fruit. Forms a large vine that does best with support. Start indoors and transplant. Matures in 84 days.

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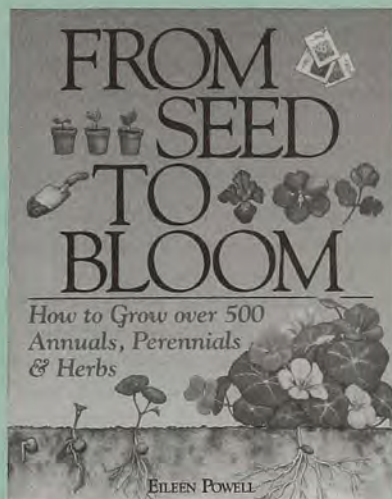
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NEW. Softcover. Retail price: \$18.95. AHS price: \$16.25.  
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This one-stop reference provides instructions on how to grow more than 500 annuals, perennials, and herbs. The individual plant entries include information on hardiness, sowing, germination, and light and soil requirements. Contains line drawings, a glossary, and a source list. 1995. 320 pages.

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A dialog between two famous and opinionated garden experts who offer valuable advice on which seed-raised flowers to grow, how to germinate and tend them, and how to best use them in the garden. 1994. 310 pages.

### The New Seed Starters Handbook

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A complete guide to propagating more

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### Saving Seeds

Marc Rogers

Softcover. Retail price: \$9.95. AHS price: \$8.50.  
Book code: GAR 010

All you need to know about how to raise, harvest, and store seeds for the easiest-to-grow and most popular vegetables and ornamental plants. The author discusses each vegetable and flower in detail and answers hundreds of gardening questions. 1992. 185 pages.

## PRUNING

### Pruning: A Practical Guide

Peter McHoy

Hardcover. Retail price: \$30. AHS price: \$27.  
Book code: ABV 193

With clear, step-by-step illustrations, close-up photographs, and precise diagrams, this authoritative guide shows exactly how to tackle all pruning jobs. An easy-to-use, A-to-Z chapter provides clear instructions on when to prune hundreds of plants. Contains 300 full-color illustrations. 1993. 240 pages.

### The Complete Book of Pruning

Brian Halliwell, John Turpin, and John Wright

Softcover. Retail price: \$14.95. AHS price: \$13.45.  
Book code: STE 188

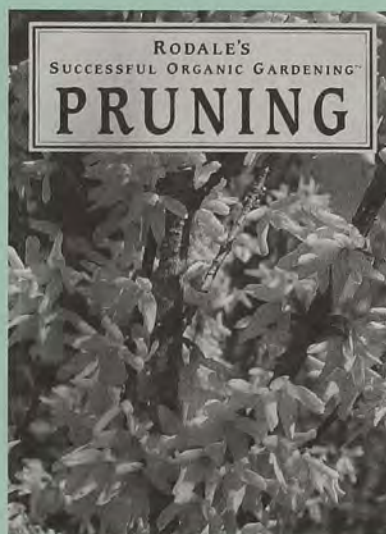
This British classic answers the "how" and "when" of pruning for trees, shrubs, climbers, fruit trees, hedges, and greenhouse plants. The text is illustrated with photographs and line drawings that pinpoint correct pruning cuts. 1988. 168 pages.

### Rodale's Successful Organic Gardening: Pruning

Kris Medic

Hardcover. Retail price: \$24.95. AHS price: \$22.45.  
Softcover. Retail price: \$14.95. AHS price: \$13.45.  
Book code: ROD 720

This book includes detailed pruning instructions on more than 120 common trees, shrubs, and vines. There are chapters on pruning for fruit produc-



tion and pruning all types of roses, as well as tips on pest and disease control. Contains color photographs and easy-to-follow diagrams. 1995. 160 pages.

## GARDEN DESIGN

### The Garden In Winter

Rosemary Verey

Softcover. Retail price: \$24.95. AHS price: \$22.45.  
Book code: TIM 115

This classic book is now available in paperback. In beautiful color photographs and highly readable text, it shows how to plan and plant for maximum effect in winter. Includes a listing of more than 200 plants notable for their cold-season flowers, berries, foliage, or bark. 1995. 168 pages.

### The City and Town Gardener

Linda Yang

Softcover. Retail price: \$18. AHS price: \$16.  
Book code: RAN 195

New in paperback, this book is a classic on designing for small spaces everywhere. It provides detailed plans and plant lists as well as mail-order sources for plants, tools, furniture, and less common items such as biological controls and soil tests. Contains color photographs and line drawings. 1995. 316 pages.

### The Collector's Garden: Designing with Extraordinary Plants

Ken Druse

NEW. Hardcover. Retail price: \$45. AHS price: \$40.  
Book code: CRN 396

In yet another outstanding book, Druse introduces us to the people who created each of the 21 featured gar-

GARDENING BOOKS









# AHS BULLETIN BOARD

## FLOWER SHOWS OFFER FREE ADMISSIONS

**I**n the nick of time to rescue gardeners from the winter doldrums, the 1996 flower show season begins with refreshing ideas and practical advice to make next spring's garden perfect. The following flower and garden shows have offered free admission to American Horticultural Society members displaying a current AHS membership card:

### Arkansas

The fifth annual Arkansas Flower and Garden Show, February 23 through 25 at the Statehouse Convention Center in Little Rock, promises to be even bigger and better than last year.

There will be 12 beautifully landscaped gardens, more than 70 commercial booths with all types of lawn and garden information, children's activities, a flower show, and a professional florists' competition. Holly Shimizu, assistant executive director and chief horticulturist for the U.S. Botanic Garden, will be the keynote speaker; other speakers will be on hand to give informational and entertaining programs. New this year will be hands-on workshops on pruning, propagation, and flower arranging.

Information: (501) 821-4000.

### Colorado

The Colorado Garden and Home Show will once again bring promises of spring to the Denver area February 3 through 11 in the Colorado Convention Center.

This year's show will inspire gardeners with 13 walk-through theme gardens designed by select Denver-Boulder area landscape contractors and garden designers, featuring 10,000 blooming plants, hundreds of trees and shrubs, waterfalls, and garden structures. Those interested in bringing the garden indoors will be attracted to the interior plant displays featuring sunrooms and atriums and cut-flower displays by professional florists. Advanced gardeners will enjoy the Standard Flower Show pre-

sented by the Colorado Federation of Garden Clubs, Inc., and the National Council of State Garden Clubs, while the novice can learn at more than 30 educational seminars on gardening and home improvement.

Information: (303) 696-6100.

### Florida

Bringing the best of the outdoors to the indoors, the 52nd annual Miami International Home and Garden Show will be held May 25 through June 2 at the Miami Beach Convention Center.

This year's show will feature an International Garden Pavilion with a wealth of information and ideas especially for gardeners in tropical climes. This area will include tropical landscape displays, floral displays, and a marketplace of gardening products and accessories. Visitors will be able to check out the latest techniques and materials for xeriscaping and environmentally friendly pest control, and hear additional tips from leading gardening pros. Exhibitors at this year's show will include landscape architects, garden designers and nurseries, horticultural groups and plant societies, and a wide variety of gardening product and accessory distributors.

Information: (305) 666-5944.

### Georgia

AHS members will be given discounted admission at the Southeastern Flower Show February 21 through 25 at the Town Hall Exhibition Center, City Hall East, in midtown Atlanta.

The five-day event will encompass nearly four acres, presenting professional landscapes that emphasize artistic considerations as well as plant choices for the South, educational displays, ongoing lectures and demonstrations, a marketplace filled with more than 100 boutiques and shops, a children's activity center, and an opening night preview party.

Information: (404) 888-5638.

### Indiana

The Fort Wayne Home and Garden Show will be held in Fort Wayne's Memorial Coliseum, February 28 through March 3.

The focus of this year's show will be international gardens, and demonstration gardens will cover 11,700 square feet in the Main Hall. "Polynesia," a central feature, will have a 30-foot waterfall dropping to a small lagoon fringed with white sand and tropical flowers. Palm trees up to 29 feet tall and tropical birds will complete the garden's effect. There will also be gardens representing Japan and the Netherlands, and an English formal garden.

Returning will be many of last year's favorites including Jim Wilson, author and host of "The Victory Garden," and seminars on a wide range of garden topics, including two new ones—bonsai and roses.

Information: (812) 546-1444.

### Massachusetts

The New England Spring Flower Show will be celebrating its 125th anniversary at the 1996 show in the Bayside Exposition Center in Boston, March 9 through 17.

This year's theme, "Celebration!," will inspire exhibitors to celebrate nature while creating wedding gardens, garden parties, Maypole gardens, and gardens that extol the history of America in and outside of the garden. Highlights of this year's show will include an interior design show, a window box exhibition, and a garden marketplace with more than 250 garden retailers. The show will also have a strong educational component with demonstrations of flower arranging techniques and home garden design; a discovery center devoted to interactive exhibits on environmental and garden-related topics; ongoing lectures and demonstrations by the Massachusetts Horticultural Society; a special exhibit on ecosystems; and the popular horticultural information center with Master Gardeners on hand to answer questions and offer gardening advice.

Information: (617) 536-9280.





## GARDENING SOLUTIONS SYMPOSIUM

The American Horticultural Society will co-sponsor a one-day symposium, "Gardening Solutions: Big Ideas for Small Spaces," along with the University of Delaware's Longwood Graduate Program and the Scott Arboretum. The symposium will be March 14 at Swarthmore College in Media, Pennsylvania.

Featured speakers are Bill Barrick, director of Callaway Gardens, Georgia; Richard Evans, Co-operative Extension specialist at the University of California-Davis; Rob McCartney, horticulturist at Sea World, Ohio; Felder Rushing, Mississippi co-author of *Passalong Plants*; and Holly Shimizu, assistant executive director and chief horticulturist of the U. S. Botanic Garden, Washington, D.C. Speakers will present ideas to maximize use of limited space in gardens. Other topics for discussion will include creating back-yard habitat gardens, building and maintaining healthy soil, incorporating edibles, herbs, and other useful plants into the garden, and container gardening.

Advance registration is required. For more information, call Gerry Zuka at (302) 831-2517.

## AHS YOUTH GARDENING SYMPOSIUM '96

Plans are underway for the American Horticultural Society's fourth national youth gardening symposium, June 28-30 at Callaway Gardens in Pine Mountain, Georgia. Entitled "Sowing Seeds and Growing Minds—Cultivating Education in the Garden," this symposium will feature speakers who are implementing innovative programming in schools and botanical gardens, using horticultural knowledge to enrich all areas of the curriculum. Callaway Gardens' education staff will showcase their exceptional children's programs, providing hands-on experience for symposium participants. Educators, horticulturists working with children, and other interested adults are encouraged to attend. For more information, call Helen Phillips at (800) CALLAWAY ext. 5153 or call AHS at (800) 777-7931.

### New York

The New York Flower Show returns to Broadway this year with the theme "Broadway in Bloom" March 8 through 17 in the New York Coliseum.

The show's display gardens and floral designs will be organized around the Broadway theme, using the great dramas and musicals of the New York stage as creative inspiration. This year's show will feature about 30 demonstration gardens and landscapes as well as floral displays, educational exhibits, free lectures, and the traditional horticultural and floral design competitions.

Information: (914) 421-3299.

### Ohio

The Fifth Third Bank Cincinnati Home and Garden Show will be February 24 through March 3 at the Cincinnati Convention Center.

Some of this year's show highlights will include a relaxation garden by Todd Porttschmidt, a perennial garden by The Garden Did It, a garden cafe by Pairi Daeza, a presentation of an Amdega Conservatory from England by Urban Thickets, Inc., and a Perennial Education Area

by Turpin Farms. This show is the Junior League of Cincinnati's biggest fund-raiser of the year and will feature various artisans selling home and garden wares plus a beautiful container garden exhibit by the Junior League.

AHS members should take their current membership cards to the exhibitor registration desk at the 6th and Elm Street lobby for free admission or call (513) 281-0022 for more information.

### Oregon

The Portland Home and Garden Show will be February 21 through 25 at the Portland Expo Center.

Last year's landscape competition featuring some of the Northwest's premier landscape designers is being expanded. This designer showcase will inspire visitors as well as give them practical ideas for their home landscapes. The show will also include many demonstrations and seminars for the homeowner on the latest techniques for nongardening skills such as installing windows, insulation, and electrical outlets.

Information: (503) 246-8291.

### Rhode Island

The third annual Rhode Island Flower and Garden Show, "The Gateway to Spring," featuring gardens of southern New England, will be February 22 through 25 at the Rhode Island Convention Center in downtown Providence.

Highlights of this year's show will include 27 demonstration gardens, many educational exhibits, a children's activity garden, amateur horticultural and floral design competitions, professional floral designers' displays, and a marketplace featuring 150 vendors of garden-related products. There will also be an extensive seminar program each day of the show.

Information: (401) 421-7811.

### Washington

The Tacoma Home and Garden Show will bloom once again January 31 through February 4 in the Tacoma Dome with exhibits, tips, demonstrations, and seminars to help spruce up the yard and shape up the home.

Highlights of this year's show will include two fully landscaped gardens featuring flowers, herbs, and vegetables; a charity auction and dinner; the "Parade of Playhouses"; more than 70 gardening seminars; and 700 exhibits showcasing the latest products and services for home and garden care.

Information: (206) 756-2121.

In addition to these shows, members of AHS are invited to attend other outstanding flower and home shows around the country free of charge. Watch for more detailed information on these shows in future publications, and be sure you have your membership card on hand.

☛ Ann Arbor Flower and Garden Show, March 28-31.

☛ Chicago Flower and Garden Show, March 9-17.

☛ Cincinnati Flower Show, April 24-28.

☛ Indiana Flower and Patio Show, March 9-17.

☛ Maryland State Home and Flower Show, March 1-3 and 8-10.

☛ Palm Beach Tropical Flower Show, February 22-25.

☛ Pebble Beach Garden Design Show, April 12-14.

☛ Greater Rochester Flower and Garden Show, March 14-17.

☛ Southern California Home and Garden Show, August 17-25.

☛ Wichita Lawn, Flower, and Garden Show, March 7-10.





# REGIONAL HAPPENINGS

## REMINDER:

There will be no March News Edition so we can bring you the first issue of our 64-page *American Gardener* in April. We have included here all events through March about which we had information at press time.

## Mid-Atlantic

♦ Feb. 10. **Prior Pruning Prevents Pathetic Plants.** Educational program. The Lewis Ginter Botanical Garden, Richmond, Virginia. Information: (804) 262-9887.

♦ Mar. 7. **How Does Your Garden Grow?** Tidewater Garden Symposium. Norfolk Academy, Norfolk, Virginia. Information: (804) 422-0789 or (804) 425-7848.

## North Central

♦ Jan. 1-Feb. 7. **Nature's Wonders.** Art exhibit. Olbrich Botanical Gardens, Madison, Wisconsin. Information: (608) 246-4551.

♦ Jan. 20. **The Arid Garden.** Opening of new permanent garden display. Frederik Meijer Gardens, Grand Rapids, Michigan. Information: (616) 957-1580.

♦ Jan. 20-Mar. 10. **Candyland.** Floral show. Mitchell Park Domes, Milwaukee, Wisconsin. Information: (414) 649-9830.

♦ Feb. 10-18. **National Home and Garden Show: A Tribute to the Countries of the United Kingdom.** International Exposition Center, Cleveland, Ohio. Information: (216) 529-1300.

♦ Feb. 15-18. **The Greater Youngstown Home and Garden Show.** Eastwood Expo Center, Niles, Ohio. Information: (216) 865-6700.

♦ Feb. 22-25. **Akron/Canton Home and Flower Show.** John S. Knight Center, Akron, Ohio. Information: (216) 865-6700.



## Northeast

♦ Jan 10-11 and 13-14. **Ecology for Landscape Professionals: What Every Designer Should Know.** Symposia. Jan. 10-11 sponsored by Morris Arboretum, held at Villanova University, Villanova, Pennsylvania.

## LADEW BATTLES WOOLLY ADELGID

Last fall Ladew Topiary Gardens in Harford County, Maryland, made its first surrender in a long battle with the hemlock woolly adelgid (*Adelges tsugae*) by removing a 60-year-old wall of eastern hemlock trees. This 15-foot-high wall surrounding the Croquet Court was planted by the gardens' first owner, Harvey Ladew, in the 1930s. Impatient to see results, Ladew selected the fast-growing hemlocks not only for this wall but also for most of the topiaries and hedges in the gardens. The loss of this wall is just one step in a long process of replacing embattled hemlocks throughout the gardens.

Eastern hemlocks were a poor choice for the intricate pruning and heavy shearing required to keep topiary in shape, Ladew horticulturists note. When the tips are removed, the tree has great difficulty regenerating from within and acquires a "hollow" look. In addition, in its native habitat the eastern hemlock is a delicate understory plant and does not typically thrive in full sun. Repeated cycles of drought, soil compaction, continual shearing, and infestations of insects such as the red spider mite made the hemlocks additionally susceptible to woolly adelgids, which both suck the trees' sap and inject lethal spittle.

The most important lesson learned from the decline of the hemlocks at Ladew is that monocultures must be avoided. Eastern hemlocks throughout the garden will be replaced over time with a variety of plants, including many cultivars of yew (*Taxus*), European hornbeam (*Carpinus betulus*), Leyland cypress (*Cupressocyparis leylandii*), and varieties of boxwood (*Buxus*) and holly (*Ilex*). The hemlock wall around the Croquet Court will be replaced with an emerald green variety of arborvitae and two varieties of yew.

vania. Jan. 13-14 sponsored by and held at Connecticut College Arboretum, New London, Connecticut. Information: (215) 836-1051, (215) 247-5777 ext. 156, or (860) 439-5020.

♦ Feb. 8-11. **Suburban Home and Garden Show.** Sponsored by the Pennsylvania Landscape and Nursery Association. Fort Washington Expo Center, Fort Washington, Pennsylvania. Information: (800) 898-3411.

♦ Feb. 24-25. **The Colorful Annual Landscape.** Symposium. The New York Botanical Garden, Bronx, New York. Information: (718) 817-8747.

♦ Mar. 6 and 8. **Roberto Burle Marx—Legend and Legacy.** Symposium. Mar. 6 held at the Americas Society, New York, New York. Mar. 8 held at Longwood Gardens, Kennett Square, Pennsylvania. Information: (914) 265-2029.

## South Central

♦ Jan. 25. **Sadie Gwin Blackburn Environmental Seminar.** Sponsored by the River Oaks Garden Club. The Museum of Fine Arts, Houston, Texas. Information: (713) 523-2483.

♦ Jan. 27. **Dress for Success: How to Choose the Right Trees for Your Landscape.** Workshop. The Dallas Arboretum, Dallas, Texas. Information: (214) 327-8263 ext. 129.

♦ Jan. 27, Feb. 17, Mar. 30, and Apr. 13. **Organic Greenhouse Workshops.** One-day workshops. The Ozark Folk Center State Park, Mountain View, Arkansas. Information: (501) 269-3851.

♦ Feb. 14. **Second Nancy Stallworth Thomas Horticultural Lecture: William C. Welch.** Slide lecture on the history of Southern gardens and heirloom plants. Brown Auditorium, Museum of Fine Arts, Houston, Texas. Information: (713) 877-1687.



♦ Mar. 2-3 and 9-10. **Local Garden Tours.** Sponsored by Ouachita County Historical Society. Camden, Arkansas. Information: (501) 836-9243 or (501) 836-9454.

### Southeast

♦ Dec. 3-Mar. 31. **Splendor Under Glass: A Winter Exhibit of Tropical Orchids.** Atlanta Botanical Garden, Atlanta, Georgia. Information: (404) 876-5859.

♦ Feb. 10. **Guilford Horticultural Society Symposium.** Natural Science Center, Greensboro, North Carolina. Information: (910) 274-6208.

♦ Feb. 23-25. **21st Annual African Violet Society of America Judged Show and Sale.** Eastlake Square Mall, Tampa, Florida. Information: (813) 239-3342.

♦ Feb. 24-26. **North Carolina Herb Association Annual Conference.** Site to be announced. Raleigh, North Carolina. Information: (919) 847-6474.

♦ Mar. 5-6. **Davidson Horticultural Symposium: Secrets of Good Gardens.** Davidson College, Davidson, North Carolina. Information: (704) 892-8285.

♦ Mar. 9-10. **15th Annual Central Mississippi Daffodil Society Show.** The public may show named daffodils; includes junior and novice exhibits. B.C. Roger Student Center, Mississippi College, Clinton, Mississippi. Information: (601) 924-7959.

♦ Mar. 15-17. **Jasper Mall Daffodil Exhibit.** Jasper Mall, Jasper, Alabama. Information: (205) 924-9654.

♦ Mar. 30-31. **Garden Study Club Daffodil Show.** The public may show named daffodils; includes junior and novice exhibits. Courthouse, Hernando, Mississippi. Information: (601) 429-6337.

### Southwest

♦ Mar. 1-2. **Third Annual High Desert Gardening and Landscaping Conference.** Sponsored by the Cochise County Master Gardeners. Wyndemere Hotel and Conference Center, Sierra Vista, Arizona. Information: (520) 458-1104 ext. 141.

### West Coast

♦ Jan 20-21 and Feb. 24-25. **Camellia Show.** Descanso Gardens, La Cañada Flintridge, California. Information: (818) 952-4401.

♦ Jan. 24-27. **Ecological Farming Conference.** Sponsored by the Committee for Sustainable Agriculture. Asilomar Conference Center, Pacific Grove, California. Information: (408) 778-7366.

♦ Sundays Jan. 21-Feb. 25 and Mar. 17. **Jameson Lecture Series.** The Arboretum of Los Angeles County, Arcadia, California. Information: (818) 447-8207.

## STOWE BOTANICAL GARDEN IMPLEMENTS MASTER PLAN

Work began in August on Phase I of the 20-year master plan for the Daniel Stowe Botanical Garden in Belmont, North Carolina. The garden was founded in 1989 by Daniel J. Stowe, a textile manufacturer and a native of Belmont. Stowe donated 450 acres of meadows, woodlands, and lakefront property, as well as a \$14 million endowment for the botanical garden.

A 10-acre interim garden features a vast perennial display of more than 300 varieties in a half-acre area. Many of the interim beds were designed by Edith Edleman of the North Carolina State University Arboretum. Other attractions include a four seasons garden, a cottage garden, a 350-variety daylily collection, and a woodland walk trail. Since education is one of the garden's primary goals, the staff offers ongoing seminars, workshops, and nature hikes, as well as conducting botanical research.

New features will include an 18,000-square-foot visitors pavilion with a reception area, a gift shop, orientation rooms, meeting rooms, and a great hall. There will be nine variety gardens at the completion of Phase I. Added to the four seasons garden and cottage garden will be a perennial border, a canal garden, and annual gardens. They will range in style and size from a small garden in a secluded spot near the visitors pavilion to an east lawn garden with a two-acre expanse of colorfully landscaped turf. A tiered-lawn amphitheater will seat 2,500 people for garden events and other entertainment.

Phase I will take more than two years to complete and cost \$14 million.

The Daniel Stowe Botanical Garden, at 6500 South New Hope Road in Belmont, is open from 9 a.m. to 5 p.m., Monday through Saturday. For more information, call (704) 825-4490.

## CONSTRUCTION SPREADING OAK WILT

Suburban expansion into wooded areas is dramatically increasing cases of oak wilt disease, a fungal disease that is causing millions of dollars in damage to red oaks in urban areas east of the Mississippi River.

"This fungal disease called *Ceratocystis fagacearum* has been a problem in the Illinois area probably for the last 40 years," explains James Appleby, University of Illinois entomologist. "It can spread in natural oak groves through root systems which graft onto each other. However, an increase has been noticed in the past few years as more homes are built in forested areas around cities. Existing trees in these suburban lots are often wounded by pruning or mechanical damage related to home building, providing sap-feeding beetles with an opportunity to spread the disease."

The disease-causing fungus produces an odor that attracts insects, especially sap-feeding beetles. The beetles transfer fungal spores to healthy trees when they feed on sap from a fresh wound.

"Most tree deaths occur in early spring or fall. The symptoms progress from the top of the tree. Leaves turn a dull green, then tan, and suddenly drop," says Appleby. "The amount of time from infection to mortality varies depending on how the disease is transmitted. In many cases it can be the next growing season before the disease is noticeable."

Not all oaks are equally susceptible. Trees in the red oak group—northern red oak, northern pin oak, and black oak—are particularly vulnerable. However, those in the white oak group—bur oak, swamp white oak, and white oak—are much less susceptible.

Arborists around the country have resorted to quickly removing diseased oaks in an attempt to stop the spread of the disease. They recommend not pruning oaks between April and July when the beetles that carry the fungal disease are most prevalent. Scientists are still testing a fungistat treatment that could be injected into trees to kill the fungus.

The University of Illinois Cooperative Extension Service has released a video and a companion leaflet explaining the disease and how to manage it. To order a copy, send \$25 payable to the university to 69NR Mumford Hall, 1301 West Gregory Drive, Urbana, IL 61801, or call (217) 333-2007.



## MARK YOUR CALENDARS NOW FOR 1996 FLOWER SHOWS

☞ **Jan. 31-Feb. 4. Tacoma Home and Garden Show.** Tacoma Dome, Tacoma, Washington. Information: (206) 756-2121.

☞ **Feb. 1-4. Atlanta Garden and Patio Show.** Galleria Center (across from Cumberland Mall on the Cobb Parkway), Atlanta, Georgia. Information: (404) 998-9800.

☞ **Feb. 2-4. St. Louis Flower Show.** Cervantes Convention Center at America's Center, St. Louis, Missouri. Information: (314) 569-3117.

☞ **Feb. 3-11. Colorado Garden and Home Show.** Colorado Convention Center, Denver, Colorado. Information: (303) 696-6100.

☞ **Feb. 7-11. Northwest Flower and Garden Show.** Washington State Convention and Trade Center, Seattle, Washington. Information: (206) 789-5333.

☞ **Feb. 21-25. Portland Home and Garden Show.** Portland Expo Center, Portland, Oregon. Information: (503) 246-8291.

☞ **Feb. 21-25. Southeastern Flower Show.** Town Hall Exhibition Center in City Hall East, Atlanta, Georgia. Information: (404) 888-5638.

☞ **Feb. 22-25. Maymont Flower and Garden Show.** Richmond Center, Richmond, Virginia. Information: (804) 358-7166.

☞ **Feb. 22-25. Palm Beach Tropical Flower Show.** Waterfront of Flagler Drive, West Palm Beach, Florida. Information: (407) 655-5522.

☞ **Feb. 22-25. Rhode Island Spring Flower and Garden Show.** Rhode Island Convention Center, Providence, Rhode Island. Information: (401) 421-7811.

☞ **Feb. 23-25. Arkansas Flower and Garden Show.** Estate Convention Center, Little Rock, Arkansas. Information: (800) 459-SHOW or (501) 821-4000.

☞ **Feb. 24-Mar. 3. Cincinnati Home and Garden Show.** Cincinnati Convention Center, Cincinnati, Ohio. Information: (513) 281-0022.

☞ **Feb. 24-Mar. 3. Southern Spring Show.** Merchandise Mart, Charlotte, North Carolina. Information: (800) 849-0248.

☞ **Feb. 25-Mar. 3. Philadelphia Flower Show.** Philadelphia Convention Center on 12th and Arch Streets, Philadelphia, Pennsylvania. Information: (215) 625-8250.

☞ **Feb. 28-Mar. 3. Fort Wayne Home and Garden Show.** Memorial Coliseum, Fort Wayne, Indiana. Information: (800) 678-6652.

☞ **Feb. 28-Mar. 3. Garden Club of Toronto Flower Show.** Civic Garden Center, Toronto, Ontario. Information: (416) 239-6774.

☞ **Feb. 29-Mar. 3. Nashville Lawn and Garden Show.** Tennessee State Fairgrounds, Nashville, Tennessee. Information: (615) 352-3863.

☞ **Mar. 1-3 and Mar. 8-10. Maryland State Home and Flower Show.** Maryland State Fairgrounds, Timonium, Maryland. Information: (410) 863-1180.

☞ **Mar. 1-10. New Jersey Flower and Garden Show.** Garden State Exhibit Center, Somerset, New Jersey. Information: (908) 919-7660.

☞ **Mar. 6-10. FloralScape '96.** Cleveland Convention Center, Cleveland, Ohio. Information: (216) 721-1695.

☞ **Mar. 7-10. Wichita Lawn, Flower, and Garden Show.** Century II, Wichita, Kansas. Information: (316) 721-8740.

☞ **Mar. 8-17. New York Flower Show.** New York Coliseum, New York, New York. Information: (914) 421-3293.

☞ **Mar. 9-10. Texas State Garden Show.** Waco Convention Center, Waco, Texas. Information: (800) 727-9020.

☞ **Mar. 9-17. Chicago Flower and Garden Show.** Festival Hall at Navy Pier, Chicago, Illinois. Information: (312) 321-0077.

☞ **Mar. 9-17. Indiana Flower and Patio Show.** Indiana State Fairgrounds, South and West Pavilions, Indianapolis, Indiana. Information: (317) 576-9933.

☞ **Mar. 9-17. New England Spring Flower Show.** Bayside Expo Center, Boston, Massachusetts. Information: (617) 536-9280.

☞ **Mar. 13-17. Washington Flower and Garden Show.** Washington Convention Center, Washington, D.C. Information: (703) 569-7141.

☞ **Mar. 14-17. Greater Rochester Flower and Garden Show.** Dome Center, Henrietta, New York. Information: (716) 442-7760.

☞ **Mar. 28-31. Ann Arbor Flower and Garden Show.** Washtenaw Farm Council Grounds, Ann Arbor, Michigan. Information: (313) 998-7061.

☞ **Apr. 12-14. Pebble Beach Garden Design Show.** The Lodge at Pebble Beach, 3rd Fairway of Pebble Beach Golf Links, Pebble Beach, California. Information: (408) 649-2799.

☞ **Apr. 24-28. Cincinnati Flower Show.** Ault Park, Cincinnati, Ohio. Information: (513) 579-0259.

☞ **Apr. 24-28. San Francisco Landscape Garden Show.** Fort Mason Center, San Francisco, California. Information: (415) 750-5108.

☞ **May 26-June 2. Miami International Home and Garden Show.** Miami Beach Convention Center, Miami, Florida. Information: (305) 666-5944.

☞ **Aug. 17-25. Southern California Home and Garden Show.** Anaheim Convention Center, Anaheim, California. Information: (714) 978-8888.

☞ **Sept. 21-22. Philadelphia Harvest.** Horticulture Center at Fairmount Park, Philadelphia, Pennsylvania. Information: (215) 625-8250.

### AHS CO-SPONSORING INDIANA EVENT

**A**n educational symposium, "Harvesting Harmony: Kids, Plants and Animals Growing Together," will be held May 2 at Orchard Country Day School in Indianapolis, Indiana. Activities include half-day work sessions with national and local experts and keynote speaker Craig Tufts of the National Wildlife Federation. The symposium is co-sponsored by the American Horticultural Society, Orchard in Bloom, and Indy Parks and Recreation. The cost is \$55. For more information, call Kate Appel at (317) 255-0474.

### ORNAMENTAL GRASSES FOR COLD CLIMES

**A** Minnesota Extension Service bulletin, "Ornamental Grasses for Cold Climates," is now available for gardeners to use in selecting winter-hardy ornamental grasses suited to their specific needs and situations. The bulletin summarizes a six-year winter hardiness study of 165 ornamental grasses at the University of Minnesota Landscape Arboretum. It features 20 color photographs and 26 illustrations of ornamental grasses, a special section on the *Miscanthus* genus, and a color map of USDA plant hardiness zones. Also included is a list of mail-order nurseries that sell ornamental grasses.

The 28-page bulletin costs \$6 plus shipping and is available from county offices of the Minnesota Extension Service. Credit card orders can be placed by calling (800) 876-8636 or (612) 624-4900; ask for item BU-6411 NR.





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—Kathleen Fisher, Editor



## BIODIVERSITY IN THE ORCHARD

Researchers with the U.S. Department of Agriculture's Agricultural Research Service (ARS) are taking a two-pronged approach to increasing the use of integrated pest management in orchards: planting cover crops at the base of fruit trees and interplanting different types of fruit. Just as in designing a wildlife garden, the goal is creating a more diverse ecosystem.

At the ARS Fruit Research Station in Kearneysville, West Virginia, entomologist Mark Brown planted a two-acre orchard with apples. In alternate rows, he planted cover crops of rape, buckwheat, dill, and dwarf sorghum, leaving only about a foot and a half of open space around the trunks. The traditional approach is to leave up to 10 feet of bare soil, so that fruit trees won't have to compete with grass and weeds for nutrients.

Rape is toxic to harmful nematodes. Dill and buckwheat are long-season producers of flowers that attract beneficial insects, one of which feeds on the codling moth, one of the apple's most serious pests. And dwarf sorghum attracts aphids, which serve as food for beneficials such as ladybird beetles. "The cover crops allowed more diverse habitats for beneficial insects to rest and mate," says Brown. "This is a holistic approach to orchard management." Instead of a harsh chemical spray normally used on apples, the ARS uses sprays of the microbial pesticide *Bacillus thuringiensis*. A first-year evaluation found that insect and disease problems were no greater on this crop than on a chemically treated control crop. Brown concluded that trees may have been too stressed by the closely planted cover crops, and will next try planting them five to six feet from the trees.

Chemicals not only leach into ground water, but they upset the orchard's ecosystem. Brown says that when strong chemical controls are used, the number of both pests and beneficials is reduced, and the pests begin returning sooner, by as much as two weeks.

D. Michael Glenn, an ARS soil scientist in Kearneysville, observes that cover crops also reduce erosion and, by sending out roots that continually die and regenerate, increase microorganisms that degrade pesticides that do get into the soil. While they may slow tree growth, this is seen as a plus as well: Competition from the ground covers reduces vegetative growth that can decrease yield, according to Glenn.

In addition to cover-cropping, the West Virginia researchers are interplanting peaches with the apples, a measure that offers two benefits: Host-specific pests find survival more difficult—a codling moth isn't at home on a peach tree, for instance—and peach flowers, like those of dill and buckwheat, attract beneficials.

## PENSTEMON CULTIVAR "PLANT OF THE YEAR"

'Husker Red' penstemon (*Penstemon digitalis* 'Husker Red') has been named Perennial Plant of the Year for 1996 by the Perennial Plant Association. The species is native from Maine to the central United States and as far south as Texas. 'Husker Red' was selected in 1983 by horticulturist Dale Lingren and named to honor the University of Nebraska, where he works.

The name also relates to the color of the plant's foliage, a burgundy or bronze-red. The white flowers appear on the 30-inch-tall perennial in July and August. 'Husker Red' prefers slightly acidic soil and performs better in the East than most *Penstemon* species, which are primarily native to our West.

## WILL ROTENONE BITE THE DUST?

Rotenone, a botanical insecticide that has been used by farmers and gardeners since the 1800s, appears on its way out for use on both ornamental and agricultural plants.

This fall, rotenone producers elected not to proceed with testing to establish food tolerance limits for the product. One of its members estimated that the testing could cost as much as \$14 million. Tolerance is the minimum amount of residue allowed by the federal government in or on a raw agricultural product.

According to Chris Lawes, federal registration manager with AgrEvo Environmental Health in Montvale, New Jersey, both rotenone and pyrethrum had until 1988 been exempt from Environmental Protection Agency requirements for the establishment of such tolerance limits because of their botanical origin. Lawes says there are approximately 120 plants that contain rotenone. Historically, the most common source has been plants in the *Derris* genus, primarily from Southeast Asia. More recently, the only commercial source for rotenone used as an insecticide in the United States has been cubé—the roots of shrubs in the *Lonchocarpus* genus, collected primarily in Peru. Pyrethrum comes from a chrysanthemum and is an important export of Kenya, among other countries. Rotenone is more labor intensive to collect since the shrub must be harvested by hand in order to obtain its roots, says Lawes.

Cindy Gann, manager of new product development for the Solaris Group, which makes Ortho products, says that Ortho voluntarily cancelled its rotenone registration in October. But they had already sold off their inventory of the product—one percent rotenone mixed with talc in a wettable powder—because it was not profitable enough. Rotenone is sometimes mixed with other active ingredients, including pyrethrum.

Lawes says sale of rotenone as a botanical insecticide—what federal regulators call terrestrial use—was a minor part of AgrEvo's market as well. It is more popular and profitable as a piscicide. Long used by South American natives to kill fish, it is now purchased by state and federal fish and wildlife service biologists to help eliminate "trash" fish from lakes and streams before restocking them with game fish or reintroducing endangered species. It will still be sold for that purpose, and to control fleas, ticks, lice, and mites on dogs and cats.

Lawes, who gardens as a hobby, comments: "The only loser here is going to be the end user, especially the organic farmer. Rotenone was one of the controls accepted under the organic growing guidelines that the USDA just adopted."

The botanical origin of a pesticide does not prevent it from being toxic, and rotenone is one of the most toxic on the market—not to most mammals or bees but to many other beneficial insects. Like most botanicals it quickly breaks down into relatively benign compounds, in a week or less in the presence of sunshine. And because they are derived from plants, botanicals are easily broken down by microbes in the soil.

Lawes says some manufacturers may yet try to defend terrestrial uses of rotenone. "It will be an uphill battle, but the nail's not in the coffin yet." Nevertheless, she observes that pesticide companies are much less willing to bear such expenses in the case of a botanical because as a natural substance, it can't be patented as can a synthetic chemical. No one has yet found a way to produce a synthetic version of rotenone, as has been done with pyrethrum.