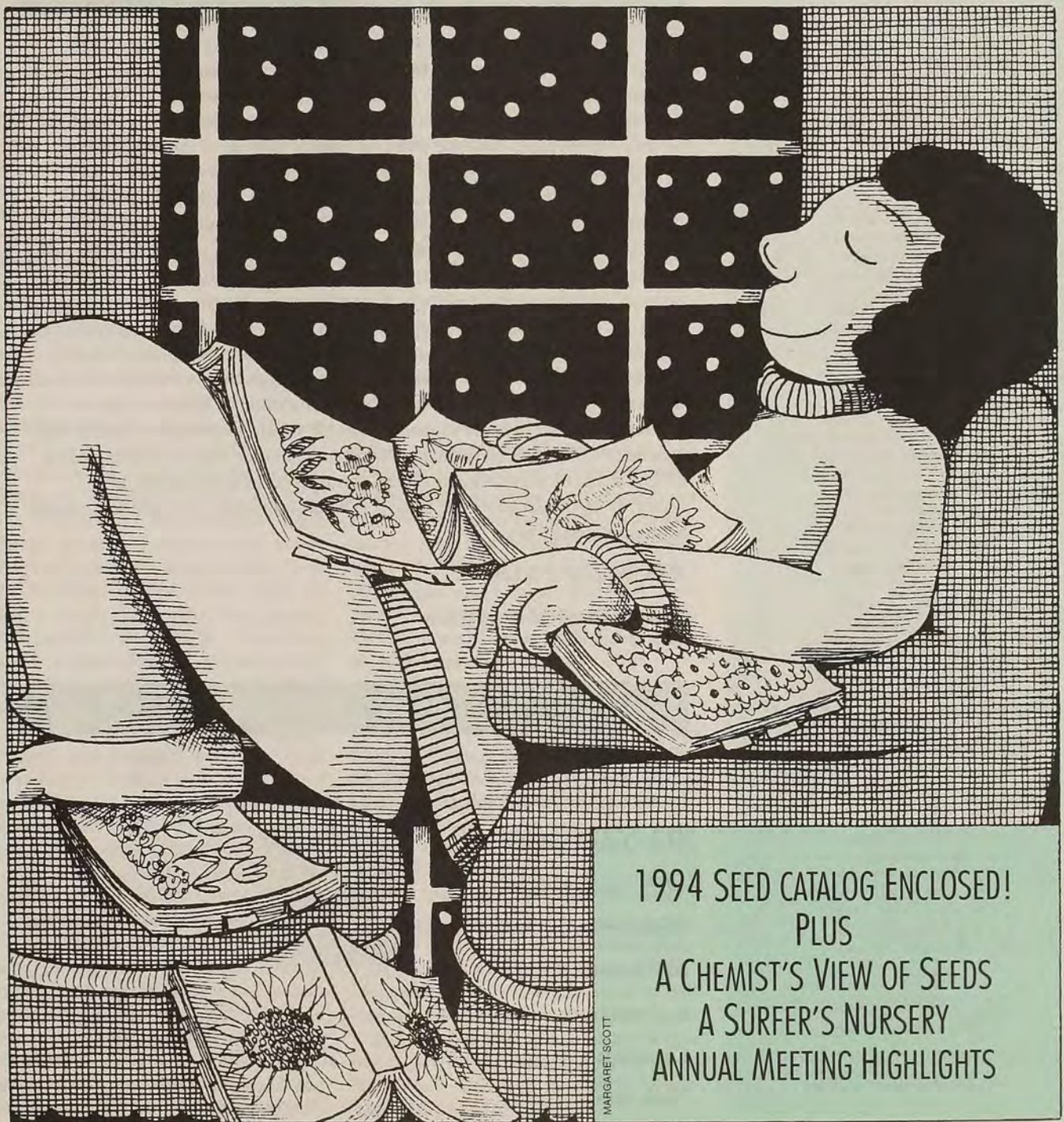


American Horticulturist

January 1994

A Publication of the American Horticultural Society

\$2.00



1994 SEED CATALOG ENCLOSED!
PLUS
A CHEMIST'S VIEW OF SEEDS
A SURFER'S NURSERY
ANNUAL MEETING HIGHLIGHTS

American Horticultural Society

The American Horticultural Society seeks to promote and recognize excellence in horticulture across America.

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American Horticulturist

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ARTICLES

Our November cover had a new look, and this month we've revamped the inside pages as well. Feedback from many members indicated that they weren't perceiving their news edition as the *American Horticulturist* and as part of their benefits from the American Horticultural Society. So beginning this month, its cover, contents page, and type styles are similar to those of the magazine. In both publications, we're adding new departments in response to members' interest in the environment, children, and small space gardening. Kristin Bernhart, a talented graphic artist and muralist in Alexandria, Virginia, has designed logos for each of the new departments, more of which you'll be seeing in February and March. "Gardeners' Q&A" is now "Gardeners' Information Service," to help remind members of another major benefit—their privilege of using our toll-free line to get gardening advice of all types from 11 a.m. to 3 p.m. Eastern Time each day. "Gardeners' Dateline" and "Regional Notes" have been combined as "Regional Happenings," which reports both news and upcoming events from around the country. This month's feature section is shorter than usual in order to make room for yet another member benefit: the catalog of our Free Seed Exchange, which entitles members to 15 free packets of seed donated from other members, commercial seed companies, and nonprofit seed exchanges. We hope you'll take advantage of it, and let us know how your seed grows.

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MEMBERS' FORUM

What Do You Think?

A "live" Members' Forum at our Annual Meeting lets members raise concerns face to face with our Board and staff. But meeting attendance is only a fraction of AHS's total membership. We would like to hear from more of you regarding issues raised at our October meeting at Disney's Village Resort in Lake Buena Vista, Florida.

Composting. The Executive Composting Act is a bill, introduced by New York Rep. George Hochbrueckner, to encourage the president and each state governor to begin home composting at their official residences. (See "Executive Bins," September.) AHS tries to encourage home composting through its National Home Composting Park at River Farm, but it does not take positions on legislation. We would like additional ideas for encouraging home composting and descriptions of local programs that could be used as models.

Children and Young People. Members said they would like to see AHS continue its efforts, which began with the national symposium "Children, Plants, and Gardens: Educational Opportunities" last summer, to spread information about plants and gardens through youth educators. Members suggested that AHS do more to reach college students through student member discounts and dissemination of information on horticultural careers. AHS would like other ideas about reaching children, older youth, and young adults who are just beginning to garden.

Annual and Regional Meetings. AHS would like to increase opportunities for personal contact between members. One

way is to increase attendance at Annual Meetings. Members' Forum participants suggested lowering costs, increasing family participation with activities for children and families and by scheduling meetings during the summer, and announcing sites several years in advance. Regional meetings are an attractive option, but difficult to organize. AHS would like to hear what kind of meetings members would like to attend and how regional meetings might be organized.



Beware of Black Pine

In the September "Gardeners' Q&A" column, you advised S.F. of Yaphank, New York, to plant Japanese black pine trees (*Pinus thunbergiana*). They're dying all over the eastern end of Long Island and being replaced with native plants, like red cedar.

*Terry Stein
New York, New York*

The Japanese black pine appears on almost every list of recommended trees for seaside gardens. But pine wilt, a disease caused by nematodes, has taken a very heavy toll on this species on Long Island, and it would clearly be risky to plant it in that area. "S.F." asked about shrubs, and we recommended the Japanese black pine because it has several dwarf cultivars.

Planting natives is no guarantee against pests and diseases, as current problems with dogwood anthracnose and the woolly adelgid on northwestern hemlocks attest. But natives that should fare well at S.F.'s home in Long Island include summer sweet (Clethra alnifolia), bayberry (Myrica pensylvanica), arrowwood (Viburnum dentatum), American holly (Ilex opaca), inkberry (I. glabra), oak-leaf hydrangea (Hydrangea quercifolia), highbush blueberry (Vaccinium corymbosum), groundsel bush (Baccharis halmifolia), and beach plum (Prunus maritima).

Found! The Lazy Daisy

In November we published a request from Michael Thomas, a member in England, for *Xanthisma texana*, a Texas native commonly called the sleepy or lazy daisy because it doesn't open until midday. Coming to his rescue was George B. Park, formerly of Park Seed Company. Park says he is forming a new seed company that will carry "the widest possible selection" of seeds of valuable

ornamental plants. He promised to put interested AHS members on a mailing list to receive a free catalog as soon as the first one is published. Write: George B. Park, Hopewood Inc., P.O. Box 825, Greenwood, SC 29648.

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GARDENERS' INFORMATION SERVICE

Q: *When I traveled in New England last summer, I discovered a roadside plant that I was told was fireweed. Could you tell me if it will grow in Maryland and if so, what nurseries or seed companies carry it?* —E. L., Bethesda, Maryland

A: You are probably referring to *Epilobium angustifolium*, commonly called fireweed because it quickly establishes itself in burned areas. This upright branched plant grows from three to six feet tall with spirally arranged six-inch leaves. The inch-long flowers, borne on spiky terminal racemes, are reddish purple. (There is also a white-flowering form, 'Alba'.) This vigorous grower can get somewhat invasive in gardens if not kept in line. If it is cut back half way to the ground in midsummer, it will become bushier and produce more flowers. It is hardy in USDA Zones 3-7, so should grow in your area, but in the southern part of its range it needs a bit of shade from intense summer sun. Some sources include Prairie Nursery, P.O. Box 306, Westfield, WI 53964, (608) 296-3679; Milaeger's Gardens, 4838 Douglas Avenue, Racine, WI 53402, (414) 639-2371; Goodwin Creek Gardens, P.O. Box 83, Williams, OR 97544, (503) 846-7357.

Q: *I would like to learn to organize or help with plant rescues. They seem to be coordinated on a grassroots level. Are there any organizations I might contact for information?* —L. S., Cary, North Carolina

A: One organization you should contact for information on plant conservation efforts and rescues is the Center for Plant Conservation, c/o Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166-0299, (314) 577-9450. The CPC's Plant Conservation Directory lists a wealth of national, regional, and local information on private- and government-sponsored plant conservation efforts for all 50 states.

You're right that plant rescue operations are organized on a local level. This past summer two AHS summer interns took

part in a plant rescue with horticulturists from a local botanical garden. The team had learned that housing construction would start soon in a forested area near their garden. They requested and got permission from the developer to go in and dig up any plants, including trees, that they felt were worth saving. Most plant rescues are organized in this fashion and are directed by professional horticulturists or botanists, and/or volunteers from plant societies, garden clubs, or Master Gardener programs.

Q: *I would like to try to propagate ginkgo tree seeds. Do they need any special treatment?* —R. D., Rochester, New York

A: *Ginkgo biloba* seeds need periods of both warm and cold conditioning since the embryo is still immature in the fall when the fruits are ripe. Open the fruit and remove the pulp, and put the seed in moist sand at 60 to 70 degrees for two months. Next give the seed two months of cold treatment at about 40 degrees. This should be followed by a normal germination temperature of about 70 degrees.

Some fresh seed will germinate when sown directly outdoors in fall, but you will obtain better germination rates by giving seed this warm-cold treatment.

Q: *Could you tell me about Mexican sage and where I might get seed or plants?* —S. F., Dallas, Texas

A: Mexican sage is the common name for *Salvia leucantha*, a member of the mint family. It is a graceful, upright, well-branched, evergreen shrub that grows to about three feet high and three feet wide. The lance-shaped, deep green leaves are finely wrinkled and downy white underneath. Violet calyxes give a purple cast to the fuzzy white

flowers, which bloom on terminal spikes in summer through autumn. Mexican sage is hardy only to Zone 9. It will grow in light shade but prefers full sun and well-drained soil and tolerates drought. There are a number of cultivars available, including

'Alba', 'All Purple', and 'Emerald'. Some sources include Holbrook Farm and Nursery, 115 Lance Road, P.O. Box 368, Fletcher, NC 28732, (704) 891-7790; Powell's Gardens, Route 3, Box 21, Princeton, NC 27569, (919) 936-4421; Woodlander's Inc., 1128 Colleton Avenue, Aiken, SC 29801, (803) 648-7522; and Wrenwood of Berekeley Springs, Route 4, Box 361, Berekeley Springs, WV 25411, (304) 258-3071.

Q: *I love growing zinnias but most develop mildew. Are there any resistant varieties?* —T. J., Canton, Ohio

A: Here at River Farm for the past two seasons we've been growing some mildew-resistant cultivars developed by W. Atlee Burpee & Company. 'Star White', 'Star Orange', and 'Star Bright' are a series of compact plants 14 inches tall with daisylike two-inch flower heads. The latter has orange gold petals. All three have bright yellow centers. Zinnias in the "Pinwheel" series come in a variety of colors. All will bloom up through frost and tolerate heat and drought.

—Maureen Heffernan
Education Coordinator



USE YOUR GIS

The American Horticultural Society's Gardeners' Information Service has developed informational materials that explore more than 30 gardening subjects, including butterfly gardening, xeriscaping, moss gardening, organic fertilizers, soil preparation, children's gardening resources, state lists of public gardens, and plant sources. Prices for the bulletins range from 50 cents to \$6.

To receive a complete list of GIS publications send a SASE to GIS Catalog, 7931 East Boulevard Drive, Alexandria, VA 22308-1300.



MAIL-ORDER EXPLORER

Tales of the South Pacific

Ever since the golden age of European exploration, mariners have sailed the South Pacific in quest of economically valuable plants. In the 18th century, Captain James Cook and naturalist Joseph Banks returned to England from their first voyage to Australia, New Zealand, and Polynesia with more than 1,000 plant specimens; a few years later the *H.M.S. Bounty* and its mutinous crew went to Tahiti to collect breadfruit for reintroduction to the West Indies.

Today the spirit of discovery persists in Jackson "Jack" Muldoon, owner of Trans-Pacific Nursery in McMinnville, Oregon. Trans-Pacific's inventory reads like a ship's log of all the faraway places Muldoon has visited in search of rare and unusual plants. Among other exotica, the 1993 catalog features kangaroo paws (*Anigozanthos* spp.), Tasmanian cypress pine (*Callitris oblonga*), owl eyes (*Huernia zebrina*) from Botswana, and pale maidens (*Sisyrinchium filifolium*), "a tiny white iris from the Falkland Islands."

"I have to have new and unusual things in front of me or I get bored. New things, new experiences—that's what spurs me on," says Muldoon. If his taste in plants seems esoteric, it is appreciated by his partisan clientele. William Moore, a gardener from Florence, South Carolina, has bought black bamboo, a lemon-scented eucalyptus tree, and a flowering lotus for his pond.

Of Trans-Pacific's plants, Moore says, "The quality is exceptional, but the really amazing thing is the price." He estimates that the Japanese maples he purchased cost a fraction of what they might at many nurseries. A bonsai enthusiast, Moore has also bought several small spruces ideal for that purpose.

But one treasure from Trans-Pacific stands out in Moore's mind. "He has these black violets with beautiful, jet black flowers—if you like black flowers—and I do." In fact, *Viola* 'Black Magic' is so distinctive that Muldoon had it patented and it's now a Trans-Pacific exclusive.



COURTESY OF TRANS-PACIFIC NURSERY

Sesbania tomentosa, one of many Hawaiian natives offered by Trans-Pacific Nursery.

Much of Muldoon's rare flora originated in the southern hemisphere, where he traveled and worked for several years as self-employed plant propagator. "My idea was to follow spring around the world." A serious surfer who first hopped on a board at age 10, he often hit the beach after a day's work. He worked and surfed his way through Australia, New Zealand, Hawaii, and many islands of Oceania. Since he would later return to these exotic locales to collect the unusual stock for his nursery, these peregrinations were a kind of unconscious reconnaissance.

Although most of his plants come from the southern hemisphere—from the equator nearly to Antarctica—his customers mail, phone, and fax orders from as far north as northern Ontario. Muldoon sees this as a natural human propensity for wanting what you haven't got. "People in the tropics are dying for alpine plants. People in the temperate zones are dying for tropical plants." He also points out that during the past 10 years

or so there has been an explosion of interest in extending the cold-hardiness of tropical and other southerly plants.

Marvin Thomas, a botany professor at a University of Pittsburgh satellite campus in Bradford, Pennsylvania, told Muldoon,

"Anytime you have a plant to trial for cold-hardiness, you can count on me."

Many of the plants Thomas has received from Trans-Pacific have helped him stretch his USDA Zone 5a growing capabilities. "When I first moved to Bradford, the locals told me, 'Now, you can have frost as early as late August, and you can have frost as late as early June.'" They were right, but Trans-Pacific came to the rescue with several hardy figs and a metasequoia that isn't supposed to grow any farther north than Zone 5b.

Established in 1976, Trans-Pacific now offers a veritable United Nations of plants, with representatives from the Pyrenees, Sri Lanka, Tibet, Tasmania, Campbell's Island (a subantarctic possession of New Zealand's), Australia, Chile, and Zimbabwe, among other places. A catalog always includes new offerings from Muldoon's most recent plant-collecting trip, the last of which was a 1991 trek to the high alpine regions of eastern Africa, where he climbed Mount Kenya and Mount Kilimanjaro. In April 1994 he will make a plant-hunting foray into the Chinese province of Hunan.

Muldoon attributes his style of plantsmanship to the same wellspring of independence that led him to surfing. "Surfing molded me to a certain extent. Surfing is an extremely individualistic sport; my personality is very individualistic. I like to do things that haven't been done or haven't been done very much." Heir to a wanderlust and pioneer outlook that Captain Cook no doubt would approve, Muldoon has created a specialty nursery that bears the stamp of that personality.

Customers enjoy sharing the adventure. Says Thomas, "If we had more nurseries like Trans-Pacific, we'd be in good shape."

—Steve Davolt
Editorial Assistant



Those who would like to follow in Muldoon's footsteps from the comfort of home can contact Trans-Pacific Nursery at 16065 Oldsville Road, McMinnville, OR 97128, (503) 472-6215, or Fax (503) 434-1505. Catalog \$2.

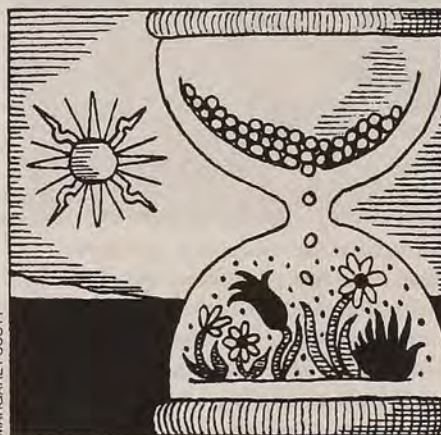
A Fresh Look at Seeds

When you first look at Norman Deno's instructions on germinating seed, it's hard to imagine that his approach could actually make things easier. Here, for instance, is his comment on the fringe tree, *Chionanthus virginica*: "Seed germ. best in 70-40-70 (52% in 5-10 w)-40 (4%)-70(28% in 5-7 w) for fresh seed and 70-40-70 (45% in 5-10 w)-40 (9%)-70 (46% in 6-10 w) for seed DS 6 m at 70."

If your seed growing is limited to tomatoes, you certainly need no guidance from this Pennsylvania State University emeritus chemistry professor. But if your taste runs more to arctic willows, native shrubs, or even hostas, you may find that his self-published book, *Seed Germination Theory and Practice*, throws a whole new light on the concept of seed germination.

"What he's done is important for two reasons: for creating a whole new language of germination that explains the underlying biological processes, and in accumulating good, hard data," says Panayoti Kelaidis, curator of the Rock Alpine Section of the Denver Botanic Garden, who

'The word drainage should be crossed out throughout the horticultural literature.'



has collected many seeds for Deno to study. "His book would be valuable for anyone growing perennials or wildflowers. For

people in the American Rock Garden Society, it's the bible."

The bulk of Deno's 242-page home-grown publication lists his findings on the germination of some 2,500 species. The translation of the information on the fringe tree, by the way, tells the reader that after warm conditioning, cold conditioning, and another exposure to warm conditions, 52 percent of the seed germinated in five to 10 weeks, and another 32 percent germinated in further cycles, and that dry storage of seeds for six months at room temperature didn't greatly change this pattern. To keep things simple, all of his cold treatments are at 40 degrees—the temperature of the average refrigerator—and all of the warm treatments are at 70 degrees, the temperature of most rooms. All conditioning lasts three months. He hasn't yet systematically studied whether periods of cold briefer or longer than three months might be as or more effective. "But I suspect that nature has evolved that way, that it represents the winter season," he says.

A number of iconoclastic gems are hidden in his introductory pages (there is little light reading here). Two of Deno's suggestions regarding the language of seed-starting made so much sense we incorporated them into the catalog of the American Horticultural Society's 1994 Free Seed Exchange.

He calls the subject of drainage "one of the most pernicious misconceptions in the horticultural literature. . . . The word drainage is like a drumbeat punctuating every paragraph. A plant cannot possibly care whether water drains fast or slow over its roots. If drainage were essential, plants could never be grown by hydroponics." What is critical, he writes, is the supply, or more precisely, the pressure of oxygen. Seedlings particularly have fast-growing roots that can quickly become asphyxiated. If soils have free air space of between 10 and 30 percent—and he has a simple method to test this (see sidebar, page 7)—they drain well and remain aerobic. "The word 'drainage' should be crossed out throughout the horticultural literature and replaced by the word 'aeration,'" he proponds.

DENO'S TECHNIQUE, IN A NUTSHELL

Most seeds that don't need light to germinate are started in moistened paper towels that have been placed in polyethylene bags kept slightly opened to maintain aerobic conditions. All warm conditioning is at 70 degrees and all cold conditioning is at 40 degrees, and all conditioning is done for three months unless germination is expected to begin before that period is over. In these cases the seed is checked weekly.

Lights used to start seeds are ordinary four-foot long, 40-watt fluorescent lights connected to an inexpensive timer, always set for 12 hours on and 12 hours off.

Plants that need light to germinate and some others with special needs are started in 3½-inch-square plastic pots, also in plastic bags. Although the best seed-starting medium varies from species to species, Deno most often uses a mix of equal parts peat moss, leaf mold, and perlite, which has a high water holding capacity as well as sufficient free air space. He tamps a layer of peat moss into the bottom of pots, fills them with medium, and sterilizes them right before use by pouring boiling water over them three times. The pots are placed a dozen to a 12-by-18-inch tray. Lighted shelves can be as little as 14 inches apart for a floor-to-ceiling germination station.

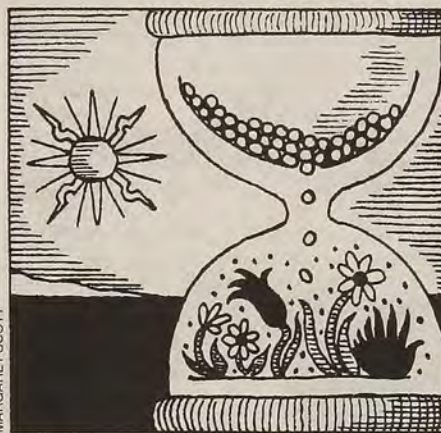
Even more disturbing to him is that most people think seeds are dormant until they are actually sprouting. Five percent of seeds have physical inhibitors against germinating; these need to have their seed coats sanded, punctured, or even removed. The rest have chemical inhibitors that are overcome by being subjected to periods of heat and/or cold, and during this period, the seed is clearly undergoing chemical changes, he says. The word “stratification”—which stems from an old English tradition of layering seeds in flats outdoors—reinforces the idea of seed passivity, Deno believes. He prefers to use the word “conditioning.”

Another critical factor is the use of gibberellic acid to stimulate germination in some seeds. “This has been totally missed by everybody!” he says. Gibberellins, of which more than 80 types have been identified, occur naturally in plant embryos, but many seeds don’t produce enough to germinate. The application of a readily available crystalline form, GA₃, has a “major effect” on about a quarter of the species he’s tested, and is an “absolute requirement” for many. It is not something a grower wants to use indiscriminantly on all seeds, however, since it is fatal to many.

Deno starts many of his seeds not in pots or flats, but in damp, folded paper towels—he recommends ScotTowels because of their strength—slipped inside a Baggie. This brand of plastic bag is of polyethylene film, permeable to oxygen but not water, he says, although he keeps his bags open slightly to allow better aeration. This system cuts down drastically on space needed to start seeds, and also on the amount of watering needed. “You have to develop some dexterity” to transplant the smaller seedlings, he admits. “I’ve used toothpicks and forceps.” There are a few exceptions: seeds that need light to germinate, for instance, are started in pots enshrouded in the Baggies.

Deno’s studies also address the effects of dry storage on seed germination. Authors before him have debunked all the stories about viable seeds being found in ancient tombs and caves, he says, although these myths are extremely persistent. “Dry storage

‘Dry storage of seeds is damaging, except for those with impervious seed coats.’



of seeds is damaging, almost without exception, except for those with impervious seed coats like legumes and some kinds of mallows. You might be able to drill a hole in a Kentucky coffee tree seed that had sat for 50 years and still get germination. But the arctic willow seeds I got recently die in two weeks. Can you imagine that?”

Another “rule” he disagrees with is that dry seed will keep longer in the refrigerator. He has found so little variation in viability between seed dry stored at 40 degrees versus 70 degrees that he has quit comparing those conditions.

He also feels strongly that endangered plants should not be roped off and coddled in their home environments, but that their seed should be as widely dispersed as possible. “We should breed them like trout, so we start worrying about having too many of them, like we do deer.”

Deno says he had planned to take a financial loss on his book, first published in 1991 and now in its second printing. As a chemist he made a considerable impact—and money—with a finding relating to the operation of oil refineries, he says. “I’m affluent. I just want to see as many people

as possible being successful growing things from seeds.” Then national publicity in October resulted in 2,000 sales. “It looks like I may end up making some money after all,” he says, with a tone that sounds very much like regret. —Kathleen Fisher
Editor

SOURCES

Seed Germination Theory and Practice can be ordered from Norman C. Deno, 139 Lenor Drive, State College, PA 16801 for \$20. “That’s \$20 postage paid anywhere in the world,” he emphasizes. “If people send \$25 or \$28, I have to send the rest back, and it’s a lot of trouble.”

While there are several commercial sources of gibberellic acid solution, Deno uses an 85 percent pure crystalline form. It can be obtained from Carolina Biological Supply Company for \$12.04 per gram. Call (800) 334-5551 in the East, (800) 547-1733 in the West, and (800) 632-1231 in North Carolina.

MEASURING YOUR SOIL’S AIR

Deno recommends using the following method to see if your soil or planting medium is well-aerated:

Find a container with a small hole in the bottom that can be temporarily closed with a stopper or tape, and fill it with a measured volume of the medium. Fill a measuring cup to the top mark and pour water into the container until the water level just reaches the level of the medium. Record the amount of water added. Now remove the stopper and let water drain into the measuring cup. If the water now in the cup is 15 to 20 percent of the amount you put into the container, your soil should be well-aerated enough for most species.

FREE STOKES

SEED CATALOG



Featuring 112 full color pages, Stokes seed catalog is a complete guide to gardening for the beginner and the professional. The catalog lists over 2,500 varieties of vegetables, flowers and herbs, including more than 250 Stokes Exclusives. Stokes also carries a full line of helpful garden accessories for around the home.

Get high quality Stokes seed at grower prices, send for your free Stokes Seed Catalog today!

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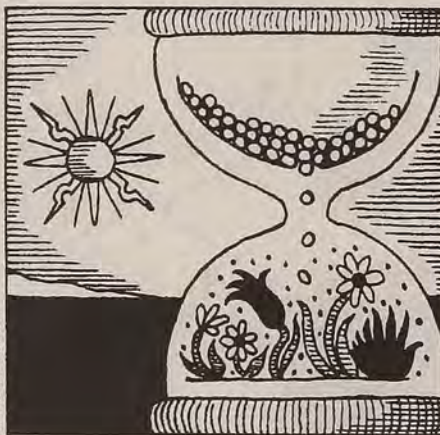
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Seed-Starting With Recyclables

*Some recycling ideas
from Davis, California,
member and
Master Gardener
Yvonne Savio.*



MARGARET SCOTT

Save boxes just wide enough for seed packets to stand up. Sort packets by planting season and put each group in its own box. Within each season, arrange packets alphabetically, or group them into early, middle, and late-season use.

Use empty citrus rinds for a seed-starting container. Fill the rind with potting mix, place one or two seeds in each, support it upright, and water to moisten the mix. Thin later to one seedling per rind, and transplant the whole unit into the garden, where the rind will decay.

Use pint-sized plastic mesh berry or cherry tomato baskets to start seeds indoors. Cucurbits—cucumbers, melons, squash—and other plants that don't like to be transplanted do especially well with this method. Line the baskets with one or two thicknesses of newspaper or paper towel, fill them with potting mix, and sow four or five seeds in each. Thin seedlings later to one or two plants, or three if you intend to plant them in hills rather than rows. The baskets allow plenty of room for root growth. After frost danger is past, plant the baskets outdoors, making sure soil is mounded over the plastic and the newspa-

per. There'll be no transplant shock, and the roots will grow through the paper and mesh into the surrounding soil. At the end of the season, you can lift, clean, and store the baskets to use again next year.

Those same plastic mesh baskets can be used to protect newly sprouted seedlings from birds. By the time the seedlings reach the tops of the baskets, they're no longer as tender and tempting.

When seedlings are ready to transplant, an old fork is one of the best tools for separating and lifting them from their flats. If the individual seedlings are growing in a segmented tray, the entire block of growing medium can be lifted without damage to the roots with the handle of the fork, a pencil, or an ice cream stick.

Use plastic dry-cleaning bags, slit open and cut to the appropriate size, to cover newly seeded flats or outdoor beds. Outdoors, of course, you will need to anchor the edges to keep the plastic from blowing away. Remove the sheeting when the seedlings are an inch tall.

To make a series of seed-planting holes without bending over, use a rubber washer on a dowel rod. Place the washer on a dowel at a height appropriate to your seed depth.

You can also plant the seeds without bending over by using a long section of old pipe. Just put the pipe in the premade hole and drop it in the top, then cover the seed using the end of the pipe.

A HOT TRICK FROM GIS

You can sterilize seed-starting media in an oven or microwave, using a medium-sized potato as your "sterility gauge." Place the medium in the oven to about the same depth as you use it in a seed flat. (Be sure not to put a metal container in the microwave!) When the potato is done enough to eat, the soil should be clean enough for your seeds.

Other tips for collecting and starting seeds are available in two publications from the American Horticultural Society's Gardeners' Information Service. Order "Seed-Saving Tips" or "Seed Germination Techniques" by sending \$1 and a self-addressed, stamped envelope for each to GIS at the AHS address.



1994 SEED CATALOG

The 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. Zone numbers tend to be conservative: plants may grow outside the ranges specified.

ANNUALS

1. *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. Seeds should be left uncovered or covered only lightly. Sow in warm soil.

2. *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.

3. *Amaranthus* sp. Height: 4-5 feet. Flowers on this bushy amaranth are orange. Its edible seeds can be toasted or ground into flour. For culture, see *A. caudatus*.

4. *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 from midsummer to frost. Sow in warm soil. Do not cover seeds. Pinch young plants back to encourage branching.

5. *Asclepias curassavica*. Bloodflower. Height: to 3½ feet. A tropical relative of the milkweed. Shrubby with narrow opposing leaves, it bears orange-red flowers with yellow centers in late summer and fall.

6. *Briza minor*. Little quaking grass. Height: 16 inches. Upright, narrow leaf blades with loosely attached spikelets of flowers. Gives plant a nodding effect, especially in a breeze. Inflorescence is first light green, turning brown at maturity. Sow in spring or fall.



7. *Calendula officinalis* 'Pacific Beauty'. Height: 24-30 inches. Uniformly large day-blooming flowers have flattish orange and yellow rays. Excellent for cutting. Very easy to grow. Blooms spring to frost. Start indoors 8 weeks before last frost for spring bloom.

8. *Cardiospermum halicacabum*. Balloon vine. Height: to 10 feet. Woody-stemmed perennial grown as an annual. Vigorous self-clinging vine. Dense, feathery, light green foliage smothered with petite snow white flowers, then seed pods that look like green balloons a bit smaller than golf balls. Self-seeds in warmer climates. Sow in warm soil.

9. *Celosia cristata* (*C. plumosa*). Cockscomb. Very showy annual with bright, feathery, erect plumes. Long-lasting flowers are 4-12 inches long and may be scarlet, off-white, pink, or yellow. Sow in warm soil.

10. *C. cristata* 'Forest Fire'. Cockscomb cultivar. Height: 24-30 inches. Blooms in scarlet and has dark bronze foliage.

11. *Cheiranthus cheiri*. Wallflower. Height: to 2 feet. Very fragrant orange flowers borne on stiff stems with narrow opposing leaves. Blooms in spring and early summer. Will tolerate some shade; doesn't like heat. Sow in spring or fall. Biennial in mild climates.

12. *Cleome hasslerana* 'Helen Campbell'. Spider flower cultivar. Height: 4 feet. Produces numerous white flowers with "spidery" stamens and seed pods. Compound leaves have spines at the base. Makes a good cut flower. In hot sunny weather the petals will curl during the day and open fully in the evening. Grows well in sun or partial shade and prefers a dry soil. Do not cover seeds.

13. *C. hasslerana* 'Pink Queen'. Spider flower cultivar. Similar to 'Helen Campbell' but with pink flowers.

14. *C. hasslerana* 'Violet Queen'. Spider flower cultivar. Similar to 'Helen Campbell' but with purple and off-white flowers.

15. *C. spinosa*. Spider flower species. Similar to *C. hasslerana* and with the same cultural requirements. Flowers are off-white.

16. *Cleome* sp. Spider flower species. Donor unsure of species. Flowers are white.

17. *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 purplish brown centers. Very elegant. Tolerates poor soils. Sow in warm soil.

18. *Cosmos bipinnatus* 'Sensation Mixed'. Cosmos cultivar. Height: 4 feet. A tall, bushy plant with finely textured, feathery foliage and flat, open flowers in rose, crimson, white, and pink. Drought tolerant. Sow in warm soil. Self-sows.

Little quaking grass, *Briza minor*, (#6) is a small grass of great charm for gardens. Its tufted habit and slender blades make a wonderful contrast with bright colored perennials or annuals. It is an excellent grass for drying and dyeing for floral arrangements.

19. *Cynoglossum amabile*. Chinese forget-me-not. Height: to 2 feet. Erect unbranching stems have narrow leaves and bear clusters of small blue, pink, and white flowers near their tops. A handsome cut flower. Part sun. A biennial usually grown as an annual.

20. *Datura innoxia*. Downy thorn-apple, angel's trumpet. Height: 3 feet. Huge, dark leaves on sprawling stems and white, trumpet-shaped flowers up to 8 inches long. These are fragrant and open at night. Sometimes they have a pinkish cast. Pinching off spent flowers prolongs the blooming season, but be careful when you handle this plant: it is poisonous. Sow in warm soil.

21. *Diascia barberae* 'Pink Queen'. Twinspur cultivar. Height: 1 foot. Erect stems have oval, toothed leaves and bear 6-inch racemes of long-lasting, baby pink flowers. Does best in cooler temperatures. Do not cover seeds.

22. *Dolichos lablab*. Hyacinth bean. Height: 6-10 feet. An ornamental member of the pea family. Flowers are pinkish purple and 1 inch long. The 2-inch purple pod contains black or white seeds. These are edible but should be thoroughly cooked with 2-4 water changes.

23. *Eschscholzia californica*. California poppy. Height: 2 feet. Finely divided blue-green foliage and 2-inch flowers ranging from deep orange to pale yellow. Blooms better in sandy soil. Drought tolerant. Will reseed.

24. *Gazania × hybrida* 'Sunbeam'. Treasure flower cultivar. Height: 6-12 inches. Flowers in red, yellow, orange, or pink on stems rising above small clumps of basal foliage. Blooms from early summer to frost. Likes light soil. Can be grown outside all year in Zone 9-10; further north, it can be moved indoors for winter. Needs cool temperatures (55-60 degrees) for germination.

25. *Gentianopsis crinita*. Fringed gentian. Height: 1-3 feet. A square-stemmed densely branching plant with narrow leaves and bright blue flowers. These are 2 inches long and have fringed petals. Blooms in September and October. Needs a moist, acid site. Difficult to germinate, but a period of cold seems to help. Sow in fall.

26. *Gypsophila paniculata* 'Early Snowball'. Baby's-breath cultivar. Height: 3 feet. Tiny, airy white flowers create a cloudlike effect. Used for filler or dried arrangements. Flowers can be cut at full bloom to dry for bouquets. Thin to 18 inches apart.

27. *Helianthus annuus*. Common sunflower. Height: 5-10 feet. Robust, coarse-leaved plant bearing yellow-rayed flowers with large seed heads. Flowers from these seeds are up to 6 inches across and centers are reddish purple before the seeds mature. May need staking. Tolerates drought and most soil types. Sow in warm soil.

28. *Helichrysum bracteatum* 'Tall Double Mix'. Strawflower cultivar. Height: to 3 feet. Blooms in a mixture of yellow, orange, red, salmon, rose, white, and purple. Flowers are up to 2½ inches across and appear mid- through late summer. Excellent for dried arrangements. Prefers a moist soil. Sow in warm soil. Do not cover seeds.

29. *Impatiens balsamina*. Balsam impatiens, garden balsam. Height: 2½ feet. Bushy with lance-shaped leaves and bearing 2-inch-wide white and pinkish flowers. Blooms all summer into fall. Prefers semishade and moist soils.

30. *I. pallida*. Jewelweed. Height: to 5 feet. Toothed ovate leaves 3½ inches long and bright yellow-orange flowers, some with dark reddish spots. Blooms summer to late fall.

31. *I. wallerana* 'Princess Orchid'. Impatiens cultivar. This version of our most popular annual bedding plant blooms in reddish violet. Moist soil in part sun or light shade.

32. *I. wallerana* 'Princess Pastel Light Pink'. Impatiens cultivar. Flowers in light pink with a darker center.

33. *Ipomoea* spp. Morning glory species. A mixture of species from this genus of tough, fast-growing 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.

34. *Lathyrus odoratus*. Sweet pea. A climbing vine, to 6 feet or more, with opposite, oval leaves and typical pea family flowers. Very fragrant. Blooms in spring and early summer. This strain flowers in purplish red. Prefers alkaline soil and plenty of moisture. Soak seeds overnight or scarify them before planting. Vines need a climbing support.

35. *Limonium sinuatum* 'Mixed Bold Colors'. Sea lavender cultivar. Height: 2-2½ feet. Vivid yellow, rose, lavender, blue, and white flowers are borne in papery sprays on stiff stems. Useful for dried arrangements. Start indoors 8 weeks before the last frost.

36. *Linaria maroccana*. Toadflax. Height: 1-1½ feet. A densely branching plant with fine, narrow leaves that produces spikes of tiny snapdragonlike flowers in red, purple, white, and yellow. Does best in cooler climates.

37. *Lobularia maritima* 'Carpet of Snow'. Seeds from a sweet alyssum cultivar. Height: 3-6 inches. Small narrow leaves form a dense mound 1 foot wide that is covered in tiny pink, purple, and white flowers from June until frost. Do not cover seeds.

38. *Lupinus densiflorus*. Gully lupine. Height: to 3 feet. A bushy plant with palmate leaves and erect racemes of yellow flowers. Flowers have the form typical of the pea family. Will tolerate part sun; does best in cool moist conditions. Soak seeds overnight in warm water or scarify them.

39. *Machaeranthera tanacetifolia* (*Aster tanacetifolius*). Tahoka daisy. Height: 2 feet. Dense, feathery foliage with compound flowers over two inches wide, varying from white to blue-violet.

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.

40. *Mirabilis jalapa*. Four-o'clock. Height: to 3 feet. A fast-growing, bushy plant with opposite, pointed leaves resembling mint foliage. Covered in summer with fragrant, tubular flowers in white, red, yellow, and pink. Some flowers are striped. Will tolerate 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.

41. *Moluccella laevis*. Bells-of-Ireland. Height: 3 feet. A shrubby, sparsely leaved plant that produces numerous upright flower spikes in late summer. Each tiny pink flower is wrapped in a large, green bell-like calyx. Favored as a cut flower. Rich soil gives better results. Self-sows. Seeds may germinate more readily if chilled for a few days and then soaked overnight. Do not cover seeds.

42. *Nicandra physalodes*. Shoo-fly plant. Height: 3 feet. A loose mass of large oval leaves and violet-blue, 1-inch flowers in July and Au-

gust. Fruits resemble those of the Chinese-lantern and are useful for arrangements. Sap is said to be insecticidal.

43. *Nicotiana glauca*. Flowering tobacco. 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.

44. *N. glauca* 'Sylvestris'. Flowering tobacco cultivar. Height: 5 feet. Donor unsure of cultivar. Similar to the previous entry but flowering in purple, pink, and white.

45. *Oxypetalum caeruleum* 'Heavenborn'. Blue milkweed cultivar. Height: to 2 feet. A sprawling, shrubby plant with narrow, heart-shaped leaves and 1-inch, 5-petaled flowers in turquoise, flecked with dark blue. Blooms in early summer. Best sown indoors, in warm soil.

46. *Papaver rhoeas*. Corn poppy, Shirley poppy. Height: 2 feet. Cup-shaped flowers have silky, crimson petals that contrast with the dark centers. Blooms all spring and early summer. Excellent for spring color in borders. Self-sows.

47. *Papaver* sp. Poppy. Donor unsure of species. Multi-colored double blooms.

48. *Pelargonium capitatum*. Rose-scented geranium. Height: to 2 feet. Hairy sprawling stems produce heart-shaped leaves on long petioles and pinkish purple flowers on slender, erect stalks. Foliage has a rose-mint scent. Will tolerate some shade; likes acid soil. To grow as a perennial, bring the entire plant indoors or root cuttings before frost. Sow in warm soil.

49. *P. myrrhifolium*. Geranium species. Height: to 2 feet. Similar to *P. capitatum* but bearing white flowers with red stripes at the center.

50. *P. odoratissimum*. Apple-scented geranium. Height: to 1½ feet. Similar to *P. capitatum* but lower and bushier. Leaves are kidney-shaped and flowers are white.

51. *Pelargonium* sp. Geranium. Donor unsure of species. Height: to 3 feet. Heart-shaped dark green foliage and small white flowers.

52. *Petunia × hybrida* 'Double Grandiflora Hybrid'. Petunia cultivar. Height: 1 foot. Compact plants bear flowers in white, pink, rose, salmon, red, burgundy, lavender, and violet. Bicolors are included too. Full or part sun. Sow indoors 8 weeks before last frost. Cover seeds very lightly, or just press them into the starting medium.

53. *Phlox drummondii*. Annual phlox. Height: 18 inches. Moundlike plants with narrow, pale green leaves that cover themselves in clusters of pink, red, lavender, or white flowers all summer.

54. *P. drummondii* 'Chanal'. Annual phlox cultivar. Height: 1 foot. Pink, ¾-inch double flowers on a low, rounded plant.

55. *Salvia splendens* 'Red Hot Sally'. Scarlet sage cultivar. Height: 1 foot. Compact plant with dark green leaves and spikes of vivid red flowers. Sow in warm soil. Do not cover seeds.



SANDY FLOWERS

Tiger Swallowtail
visits Asclepias

56. *Sanvitalia procumbens*. Creeping zinnia. Height: 6 inches. A sprawling, densely branching plant with opposing, nearly oval leaves and 3/4-inch, daisylike flowers. These have yellow rays and purple centers. Thin to about 6 inches apart. Seedlings don't like to be transplanted.

57. *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.

58. *Sorghum bicolor*. Broomcorn. Height: 6-10 feet. Rapidly growing, coarse-textured annual used for making brooms. Sometimes puts out prop roots. Full sun or partial shade; particularly suited to the Great Plains.

59. *Tagetes erecta* 'Sugar and Spice Mixed'. African marigold mix. Height: 20 inches. Fully double flowers up to 3 1/2 inches across on sturdy compact plants. Unbeatable ability to ward off pests if planted near vegetables. This is the first marigold mixture that includes the famous white marigold, as well as bright yellow, gold, and orange blooms. Easy to grow.

60. *T. patula* 'Burgundy Ripple'. French marigold cultivar. Height: 1 foot. Unusual crimson flowers with gold edges. *T. patula* cultivars are heat tolerant and excellent for edging, borders, or window boxes.

61. *T. patula* 'Happy Days'. French marigold cultivar. Height: 2 feet. Profuse double flowers are orange-red and yellow. Early blooming.

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

63. *T. patula* 'Sparky'. French marigold cultivar. Height: 1 foot. Abundant bicolor double flowers in orange and yellow.

64. *Tagetes* sp. Marigold. Donor unsure of species. Bright butterscotch yellow flowers. Excellent for hot and dry areas.

65. *Thunbergia alata* 'Susie Mixed'. Black-eyed Susan vine cultivar. Requires a protected site. Climbing plant up to 6 feet. Showy orange, white, and yellow flowers with dark brown centers up to 2 inches wide. Excellent for trailing ground cover, hanging basket, or trellis. Does best with a support. Prefers warm sites. Slow germination.

66. *Trachymene caerulea* 'Blue'. Blue lace flower cultivar. Height: to 2 1/2 feet. A clump of stalks with sparse, feathery foliage and topped with lavender umbels up to 3 inches across. Reminiscent of Queen-Anne's-lace. An excellent cut flower.

67. *Tropaeolum majus*. Nasturtium cultivar. Donor unsure of cultivar. Rambling, vinelike plant with round, bright green leaves and large flowers in yellow, orange, and red.

68. *Xeranthemum annuum*. Immortelle. Height: 2-3 feet. Fuzzy, grayish stems and leaves. Daisylike flowers are up to 1 1/2 inches wide and may be

single or double. Blooms in red, pink, purple, and white in late summer and fall. Thin to about 8 inches. Doesn't like to be transplanted.

69. *Zinnia elegans* 'Golden Queen'. Zinnia cultivar. Height: 2-3 feet. Double yellow daisylike flowers on robust stalks with bold opposing leaves. Deadhead regularly for summer-long flowering.

70. *Z. elegans* 'Rose Pinwheel'. Zinnia cultivar. Height: 1-2 feet. Bushy plants with single blooms 3 inches wide. These open pink and mature to a deep rose. Excellent cut flower. Resists mildew. Dead-head regularly.

71. *Z. haageana* 'Persian Carpet'. Mexican zinnia cultivar. Height: 18 inches. Smaller than *Z. elegans* with narrower leaves. 'Persian Carpet' produces mostly double flowers in red, orange, and yellow.

PERENNIALS

72. *Achillea millefolium*. Common yarrow. Height: 2 feet. Flat heads of rich red flowers bloom in summer above feathery dark green leaves. Will rebloom if dead flowers are removed. Good for dried arrangements. Needs full sun. Zone 3-10.

73. *Alcea ficifolia*. Figleaf hollyhock. Height: 6 feet. Single, double or semi-double flowers appear in late spring or early summer. The flowers, which may be over 3 inches across, range in color from yellow to orange. Distinctive, figlike leaves and a shorter stem distinguish this from the common hollyhock. All hollyhocks germinate best in cool temperatures (55-60 degrees). Biennial. Zone 3-9.

74. *A. rosea*. Common hollyhock. Height: 10 feet. Spikes of white, pink, or purple flowers 2-4 inches across. Requires staking. Best for the back of a border or against a wall or fence. Zone 3-9.

75. *Alcea* sp. Hollyhock. Donor unsure of species. Height: 6-8 feet. Spikes of pink, rosy and purple flowers 2-3 inches across. Requires staking. Plant in rich soil. Zone 2.

76. *Allium 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.

77. *Althaea officinalis*. Marsh mallow. Height: 4-6 feet. Oval or heart-shaped leaves and 2-inch pink flowers on tall stalks. Blooms from July through October. The roots, once used to make marshmallow paste, are thought to have medicinal properties. Needs moist soil. Zone 5-7.

78. *Amsonia tabernaemontana*. Willow amsonia. Height: to 3 feet. Fuzzy, willowlike leaves and baby blue, star-shaped flowers in drooping terminal clusters. Blooms in spring. Foliage may turn yellow in fall. Plant in part sun in moist loam. Seeds may germinate more readily if given a 1-month cold treatment, then soaked in water for a couple of days. Zone 3-9.

79. *Andropogon gerardii*. Big bluestem, turkey foot. Height: to 7 feet. A warm-season clumping grass with blue-green blades shading into red. The purplish flower spikes emerge in August,

eventually producing "turkey foot" seed heads. This was the main grass of the tallgrass prairies. Start in pots and transplant out after plants are well established. Takes 5-7 years to mature. Zone 4-10.

80. *Aquilegia caerulea*. Rocky Mountain columbine. Height: to 2 1/2 feet. Loose, delicate 3-lobed leaves on long petioles and tubular, blue and white flowers with long spurs. Spring blooming. Columbines prefer part shade and rich, well-aerated soil. They can be difficult to germinate. For the species, it may help to scarify the seeds by rubbing them with sandpaper. In general, it's probably best to sow columbines outdoors in fall or early spring without covering the seeds. Zone 3-8.

81. *A. canadensis*. Canadian columbine. Height: 3-3 1/2 feet. Five-petaled flower with spurs of vivid scarlet and yellow. Blooms in late spring to early summer. Airy, blue-green foliage and a very graceful and elegant habit. For culture, see *A. caerulea*, above. Zone 3-8.

82. *A. flabellata* var. *pumila*. Fan columbine variety. Height: 6 inches. A compact plant with blue gray leaves and nodding, deep blue flowers with conspicuous, hooked spurs. For culture, see *A. caerulea*. Zone 3-6.

83. *A. nigricans*. Columbine species. Height: to 2 feet. Similar to *A. caerulea* but with blue-violet flowers. For culture, see *A. caerulea*. Zone 4-9.

84. *A. vulgaris* 'McKana's Hybrids'. Seeds from a columbine cultivar. Height: 2 1/2 feet. Parent plants produced spurred, early summer flowers in a mix of red, pink, white, and yellow. Good for naturalized settings. For culture, see *A. caerulea*. Zone 3-8.

85. *Aquilegia* 'Harlequin Mixed'. Columbine cultivar. Height: 3 feet. Early blooming with both pure and bi-colored flowers in yellow, pink, blue, and purple. For culture, see *A. caerulea*. Zone 4-8.

86. *Aquilegia* spp. Columbine. Donor unsure of species. Height: 3-3 1/2 feet. Long spurs of vivid scarlet and yellow appear late spring into early summer. Airy blue-green foliage and an elegant habit. For culture, see *A. caerulea*. Zone 3.

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

88. *Aruncus sinensis* 'Zweiweltenkind'. Goats-beard cultivar. Height 4-6 feet. Vigorous grower with large, toothed, pinnate leaves and branching, terminal panicles of white flowers in summer. Prefers a moist site in light shade. Sow seeds 18 inches to 2 feet apart. Will self-sow. Zone 5-7.

89. *Asclepias incarnata*. Swamp milkweed. Height: 3 feet. Mostly unbranched stems bear 3-6-inch alternate leaves and a clump of small, pink flowers in summer. The flowers smell faintly of vanilla. Does best in moist soils. Zone 3-9.

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

91. *Baptisia australis*. False indigo. Height: 2-6 feet. Forms large clumps of cloverlike blue-green leaves. In summer, long racemes of blue flowers emerge. Requires full or part sun in moist, well-aerated soil. Sow in late fall or early spring. Spring-sown seed should be scarified. Zone 4-9.

92. *Belamcanda chinensis*. Blackberry lily. Height: 1½-3 feet. Bulb produces orange-red, spotted flowers to 2 inches across. Semierect, 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. Should be protected during cold winters. Zone 5-10.

93. *Bellis perennis*. English daisy. Height: 6-8 inches. A basal rosette of leaves gives rise to a stem bearing a single flower. These seeds are for double flowers in white, pink, red, and purple. Blooms from April to May. Does best in rich, moist soil. Will tolerate light shade but doesn't like heat. Can be invasive. Biennial. Zone 4-7.

94. *Campanula trachelium* 'Album'. Nettle-leaved bellflower cultivar. Height: to 3 feet. Rough, hairy leaves on a robust stem and panicles of funnel-shaped white flowers in late summer. Part sun in moist soil. Zone 3-7.

95. *Canna indica*. Canna lily, Indian shot. Height: to 4 feet. The stem, partly sheathed in leaves that grow to 18 inches, produces a loose spike of flowers. The bright red petals have an orange lip. Needs a rich soil and plenty of water. Scarify seeds or soak them overnight in warm water. North of Zone 8, the root stocks must be dug and stored after the first frost. Zone 8-10.

96. *Catananche caerulea*. Cupid's-dart. Height: 2 feet. Lavender-blue 2-inch flowers with dark blue centers appear in summer on thin but sturdy stems above narrow, gray green foliage. Prefers a light, dry site and should be sown in warm soil. Zone 3-9.

97. *Chasmanthium latifolium*. Northern sea oats, wild oats. Height: to 3 feet. A clumping, warm season grass with leaves like bamboo and seed pods like oats. The pods appear in August and turn copper in fall, then gray in winter. Does best in some shade. Will tolerate most soils but should not be allowed to dry out. Zone 5-9.

98. *Chrysanthemum leucanthemum* (now *Leucanthemum vulgare*). Oxeye daisy. Height: 2-3 feet. A typical daisy flower, with white rays around a yellow center and up to 2 inches across. Stem is erect and sparsely leaved. Blooms in late spring. Good for naturalizing in meadows and useful as a cut flower. Zone 3-9.

99. *C. parthenium* (now *Tanacetum parthenium*). Feverfew. Height: to 2 feet. Aromatic foliage and daisylike flowers with yellow centers and white rays. Sometimes dried for medicinal uses. Prefers sandy, well-aerated soil and full sun but tolerates light shade. Direct sow in early spring. Zone 6-8.

100. *C. × superbum* (now *Leucanthemum × superbum*). Shasta daisy. Height: 2½ feet. White-rayed flowers are up to 3 inches across and have yellow centers. Blooms from early summer to frost. The dark green leaves are undivided, which is unusual for a chrysanthemum. Pinch plants to encourage a fuller shape. Sow in warm soil. Zone 4-9.

101. *Coreopsis grandiflora* 'Sunburst'. Coreopsis cultivar. Height: 2 feet. Leafy stems bear semidouble, orange-yellow flowers in the summer. Prefers a sandy soil. Do not cover seeds. Zone 5-9.

102. *C. lanceolata*. Lance-leaved coreopsis. Height: 2 feet. Similar to *C. grandiflora* 'Sunburst' but with single flowers and sparser foliage. Do not cover seeds. Zone 3-8.

103. *Crocsmia × crocosmiiflora* 'Lucifer'. Montbretia cultivar. Height: 3 feet. Deep red flowers bloom along branching spikes in midsummer. Has clump-forming, swordlike bright green leaves. Needs an open, sunny site. Sow in fall. Zone 5-9.

104. *Daucus carota*. Queen-Anne's-lace. Height: 2-3 feet. Small white flowers borne in a flattened cluster with a single reddish flower in the center. Blooms from June to September. Fernlike, airy texture provided by finely cut leaves and slender stems. Prefers full sun and sandy soil. Popular in flower arrangements. Biennial. Zone 3-10.

105. *Desmanthus illinoensis*. Illinois bundle-flower, prairie mimosa. Height: 3-6 feet. Finely textured compound leaves on upright stems. Tiny white or greenish flowers throughout the summer. Often used in rangeland revegetation. Not particular about soil conditions. Scarifying seed will aid germination. Zone 4-8.

106. *Dianthus barbatus* 'Excelsior Mixed'. Sweet William cultivar. Height: 2 feet. Abundant red, pink, white, and violet fringed flowers. Excellent for rock gardens. Usually treated 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.

107. *Dicentra eximia*. Turkey corn, wild bleeding-heart. Height: 1 foot. During late spring and summer, pink flowers hang from slender stems. Fernlike foliage is gray green and finely cut. Likes rich, moist, well-aerated soil and semi-shade. Needs cool temperatures (55-60 degrees) for germination. Cold condition for 2 months or sow in fall. Zone 4-8.

108. *Digitalis grandiflora*. Yellow foxglove. Height: 2-3 feet. A clump of hairy, toothed, dark green leaves give rise to a stem bearing 2-inch drooping yellow flowers, marked with brown. Used as a medicinal. Foxgloves prefer part sun and rich well-aerated soil. Seeds sown outdoors in early fall or started in a greenhouse during winter should flower the following summer. Germination is rapid in warm soil. Zone 3-8.

109. *D. lutea*. Straw foxglove. Height: 2-3 feet. Abundant racemes of light yellow to white flowers a bit smaller than those of *D. grandiflora*. For culture, see *D. grandiflora*. Zone 3-8.

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

111. *Echinacea paradoxa*. Yellow coneflower. Height: 3 feet. Narrow-leaved upright stalks that produce showy flowers in late spring and early summer. Large, bright yellow rays surround a domed, chocolate brown center. Will tolerate part sun and dry soil. Sow in warm soil. Zone 5-8.

112. *E. purpurea*. Purple coneflower. Height: 2-5 feet. A sturdy, coarse, hairy plant with leafy, branching stems. Its solitary, daisylike flowers may reach 6 inches across. Their showy, drooping petals vary from purplish pink to almost white. Easy, low-maintenance plant. Zone 3-8.

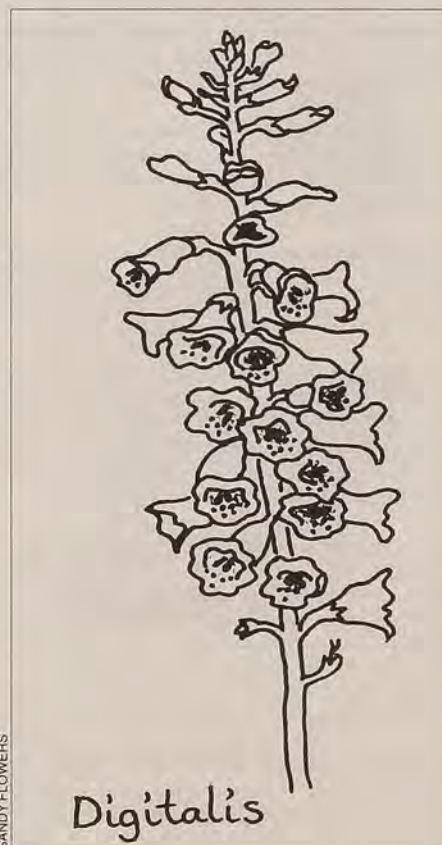
113. *Echinops ritro*. Globe thistle. Height: 4 feet. Erect stands of sturdy stems with thistlelike leaves. Flowers are tightly grouped into large, spherical, compound heads. Easy, undemanding plant for a sunny location. Excellent for cutting and dried arrangements. Zone 4-10.

114. *Erigeron pulchellus*. Robin's plantain. Height: to 2 feet. Pink to violet, daisylike flowers appear in late spring or early summer above a clump of hairy, spatula-shaped basal leaves. Tolerates poor soils. A biennial or short-lived perennial. Zone 3-7.

115. *Eryngium 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.

116. *Eupatorium perfoliatum*. Common bone-set. Height: 4-6 feet. Erect, branching stems seem to be growing right through their wrinkled hairy leaves. Flat-topped clusters of creamy white flowers appear in late summer. Occasionally flowers in bluish purple. Prefers a moist, limy soil. Zone 3-8.

117. *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.

118. *Gaillardia aristata*. Blanketflower species. 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.

119. *Hemerocallis* 'Stella de Oro'. Seeds from a daylily cultivar. Height: 1 foot. Parent is a miniature form that produces golden 3-inch flowers from May to frost. Won the American Hemerocallis Society Stout Medal. Germinates in 3-7 weeks. Full or part sun. May be sown in fall. Zone 4-9.

120. *Hemerocallis* cultivars. Daylilies. Height: 1½-3½ feet. A mix of yellow, orange, pink, red, maroon, salmon, and several bicolor flowers, which begin appearing about midsummer. Culture is the same as with 'Stella de Oro'. Zone 4-9.

121. *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.

122. *Heuchera americana*. American alumroot, rock geranium. Height: 18 inches. A mound of evergreen geraniumlike leaves up to 6 inches long, topped with delicate panicles of tiny greenish white flowers in late spring. The foliage, which is often purplish, is the strongest feature of the plant. Prefers part sun or light shade in a moist loam. Sow in warm soil. Zone 4-9.

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

124. *H. moscheutos*. Common rose mallow. Height: 3-8 feet. Impressive 6-12-inch flowers are red, white, pink, or bicolor. Its many stems and 8-inch leaves give the plant a shrubby form. Full or partial sun and moist, rich soil. Sow in fall. Do not cover seeds. Zone 5-9.

125. *H. moscheutos* subsp. *palustris*. Marsh mallow, sea hollyhock. Height: 3-8 feet. White, pink, and rose flowers. Leaves are rounded and 3-lobed. Hairy fruits. Excellent choice for a bank at water's edge. Sow in fall. Do not cover seeds. Zone 4-9.

126. *Hibiscus* sp. Donor unsure of species. Similar to *H. moscheutos* but flowers only in white. Do not cover seeds.

127. *Hosta sieboldii*. Seersucker plantain lily. Height: to 2½ feet. Large, ribbed, heart-shaped leaves have a blue gray cast. In early summer, racemes of pale lilac flowers are borne on stems above the foliage. Prefers shade and rich soil. Zone 3-8.

128. *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. Needs shade. Zone 3-9.

129. *Iris pseudacorus*. Yellow iris. Height: 5 feet. Yellow-flowered iris with blue-green foliage. Grows best in moist areas. Blooms in late spring. Sow in fall. Zone 5-9.

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

131. *Kosteletzkya virginica*. Seashore mallow species. Height: 4 feet with an equal width. A branching, shrubby plant with serrated, hairy leaves and pink flowers up to 3½ inches wide. Blooms in summer. Prefers a sandy soil and needs plenty of water. Sow in warm soil. Zone 7-9.

132. *Lathyrus latifolius*. Sweet pea vine, perennial pea. A 6-9-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.

133. *Lavatera thuringiaca*. Tree mallow species. Height: 4 feet. A bushy plant with broad maplelike leaves and light pink flowers 2 inches across. Blooms from July to September. Rich soils tend to reduce flowering. Zone 5-10.

134. *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.

135. *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.

136. *L. spicata*. Blazing-star species. Height: 2-5 feet. Two-foot spikes of 5-14 rosy purple florets bloom on smooth stems. Drought resistant. Winter mulching is recommended in cold climates. Prefers moderately fertile, sandy soils that drain well in winter. Zone 3-10.

137. *L. spicata* 'Alba'. Blazing-star cultivar. Height: 2 feet. Similar to the previous entry but with off-white flowers.

138. *L. squarrosa*. Scaly blazing-star. Height: to 3 feet. Clumps of stalks clothed in thin, grasslike leaves are topped with dense spikes of bright purple flowers from midsummer to fall. Tolerates a variety of conditions, including heat, drought, cold, and poor soil. Zone 5-8.

139. *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 partial shade. Benefits from winter protection. Zone 5-8.

140. *Lilium* 'Connecticut King' and 'Enchantment'. Asiatic lily cultivars. Height: 2-3 feet. 'Connecticut King' blooms in bright yellow; 'Enchantment' has orange flowers with

One of our contributors this year is the America the Beautiful Fund. This organization is able to make larger gifts of seed to community greening projects and youth organizations. For information on how to obtain these "seed grants" contact them at: America the Beautiful Fund, 219 Shoreham Building, Washington, DC 20005, (202) 638-1649.

brown spotted throats. Zone 4-8.

141. *Lobelia cardinalis*. Cardinal flower. Height: 3-4 feet. Bright scarlet, occasionally pink or white tubular flowers are 1½-inches long. Blooms in summer. Prefers moist soil and light shade. In cooler climates, will tolerate full sun. Sow in fall. Do not cover seeds. Zone 2-9.

142. *L. siphilitica*. Blue cardinal flower, big blue lobelia. Height: 2-3 feet. An erect unbranching plant with oval leaves and dense terminal racemes of bright blue flowers. Blooms in late summer. Part sun in moist soil. Zone 4-8.

143. *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. Biennial but will reseed. Full sun or light shade. Zone 6-9.

144. *Lychnis chalconica*. Jerusalem campion, Maltese cross. Height: 2-3 feet. Lance-shaped 2-4-inch opposite leaves. Produces dense clumps of vivid scarlet flowers on tall stems in summer. Often needs staking. Full to partial sun in a moist, well-aerated, fertile soil. Zone 3-9.

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

146. *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. Seed is collected from the AHS's River Farm headquarters. Zone 3-8.

147. *Malva alcea* var. *fastigiata*. Hollyhock mallow variety. Height: 3-4 feet. Blooms in a mass of pink from July to October. Full to part sun. Short lived, but usually self-seeds. Zone 4-8.

148. *M. moschata*. Musk mallow. Height: 2-3 feet. Bushy with satiny, rose pink, 2-inch flowers, June through September. Prefers lime-free soil. Zone 5-8.

149. *Miscanthus sinensis*. Eulalia, Japanese silver grass. Height: 8 feet. Upright clump of flat, 3-4-foot leaf blades ⅜-inch wide. Pink to reddish, 8-10-inch feathery terminal flowers are borne on long stalks in fall. Flower plume will persist throughout winter. Prefers a moist site. Sow in fall. Zone 5-9.

150. *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.

151. *Oenothera bookeri*. Evening primrose species. Height: 2-6 feet. A basal rosette of narrow leaves gives rise to a stem that supports spikes of yellow-orange flowers. Flowers open in the evening. Prefers poor, well-aerated soil. Drought tolerant. Sow in warm soil. Usually biennial. Zone 4-8.

152. *Passiflora incarnata*. Maypop, wild passionflower. A climbing vine that can reach 30 feet, maypop has 3-lobed leaves and purplish pink flowers 2 inches across. It blooms in late summer and produces an edible yellow fruit that is opened by squeezing until it pops. Roots overwinter while top dies back. Spreads by root and can be invasive. Will tolerate part sun; requires moist, well-aerated soil. Can be difficult to germinate. Sow in warm soil. Zone 7-10.

153. *Pennisetum* sp. Fountain grass. Donor unsure of species. Height: 3-4 feet. Arched, bright green leaves are 2-3 feet long and create a large mound. In fall, they turn golden brown. Flower spikes, which look like bottle brushes, are 5-7 inches long and are borne on 4-foot stems. Blooms in mid- to late summer. Zone 5.

154. *Penstemon parryi*. Parry's penstemon. Height: 2-4 feet. A basal rosette of narrow leathery leaves gives rise to spires of pink, tubular flowers, usually in early spring. Native to the Sonoran desert. Drought tolerant. Zone 7-10.

155. *Physostegia virginiana*. False dragonhead, obedient plant. Height: 4 feet. Impressive 6-10 inch racemes with 1¼ inch snapdragonlike flowers in rosy pink, lilac, and white. 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.

156. *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.

157. *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.

158. *R. pinnata*. Gray-head coneflower. Height: 3-4 feet. A sparsely leaved, upright branching stalk producing a gray green flower head, which unfurls brilliant, clear yellow rays. Blooms may last all summer. Does best in a loamy soil. Zone 4-7.

159. *Rudbeckia fulgida* var. *sullivantii*. Black-eyed Susan variety. Height: to 30 inches. Deep green foliage and flowers with bright yellow petals surrounding a nearly black cone. Blooms from midsummer to fall. Sow in warm soil. Zone 3-9.

160. *R. hirta*. Black-eyed Susan species. Height: 2-3 feet. Erect with rounded habit. Similar to *R. fulgida* but with broader leaves. Blooms summer to fall. Excellent for borders, bedding, and cut flowers. Easy to grow. Full sun to very light

shade. Tolerates heat and dry soils. Biennial. Zone 4-8.

161. *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 a rich, moist soil, but will grow in poor soil. Heat and drought tolerant. Zone 4-8.

162. *R. triloba*. Thin-leaved coneflower. Height: 4½ feet. Distinguished from *R. hirta* by its smaller, more numerous flowers with shorter rays. Somewhat invasive. Sow in fall. Zone 3-10.

163. *Salvia farinacea* 'Victoria'. Mealy-cup sage cultivar. Height: 3 feet. Erect stems bear whorls of narrow leaves and violet-blue, tubular flowers. Summer blooming. Tolerates heat well. Needs a fertile soil. Sow in warm soil. Grown as an annual in the North. Zone 7-10.

164. *Saponaria officinalis*. Bouncing Bet. Height: 3 feet. Rough leaves are borne on erect stems. Pale pink or white flowers appear June to September on short stalks. Sow in fall. Zone 4-8.

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165. *Sarracenia* spp. Pitcher plant species and hybrids. Height: to 3 feet. These insectivorous plants produce erect, open-mouthed tubes into which their prey is attracted. Plants need a protected spot in full sun and a moist, acid loam. Push seeds half way into pots of sphagnum or sandy muck. Keep moist. Seed-grown plants take up to 4 years to mature. One species included here, *S. purpurea*, is hardy to Zone 3. But this mixture of species and hybrids is probably not hardy in its entirety north of Zone 7.

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

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

168. *S. striatum*. Blue-eyed grass species. Height: 15-30 inches. Clumps of irislike leaves about 1 foot long. In summer, bell-shaped straw-colored flowers appear along stems that rise above the leaves. Easy to germinate. Zone 8-10.

169. *Solidago rigida*. Stiff goldenrod. Height: 5 feet. Coarse-leaved, upright stalks bearing large, dense clusters of tiny, golden flowers in late summer and early fall. Tolerates a wide variety of conditions. Sow thickly; tends to have a low viability. Zone 3-8.

170. *Sorghastrum nutans* (*S. avenaceum*). Indian grass. Height: to 5 feet. An upright, clumping warm-season grass with long, fine leaves and feathery, yellowish panicles that appear in late summer. Turns a burnt orange in fall. Effective in winter. Start in pots and transplant out after

plants are well-established. Will reseed itself if sufficient moisture is available. Takes 5-7 years to mature. Zones 4-9.

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

172. *Tanacetum 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 4.

173. *Thermopsis caroliniana*. Carolina lupine. Height: 4-5 feet. Not really a lupine but resembles one in foliage and flower. Blue-green leaves are divided into three oval leaflets. Yellow, pea-type flowers on 6-12-inch racemes appear in spring. Likes some shade in warmer climates. Soak seeds overnight or scarify them with sandpaper before sowing. Zone 3-9.

174. *Tiarella wherryi*. Wherry's foamflower. Height: 1 foot. Long-petioled, downy maplelike leaves in neat mounds, topped in spring and early summer with racemes of small, white star-shaped flowers. Evergreen, with some red variegation. Leaves may turn dark red in winter. Requires a moist loam in light shade. Zone 5-9.

175. *Verbascum blattaria*. Moth mullein. Height: to 6 feet. Outstanding columnar habit makes this plant excellent for the back of the border or as a specimen. Lovely 1-inch yellow flowers with a lavender base. Woolly, gray blue leaves contrast well with the flowers. Does not do well in wet or cold soils. Biennial but self-sows to bloom the following year. Do not cover seeds. Zone 5-9.

176. *V. chaixii*. Mullein species. Height: 3 feet. Summer flowers are 5-lobed, slender yellow spires with purple stamens. Erect in form with toothed oval leaves and covered in silvery hairs. Sow in warm soil. Do not cover seeds. Zone 5-9.

177. *V. thapsiforme*. Mullein species. Height: 5 feet. Fuzzy, elliptical leaves run partly up a stalk that terminates in a long panicle of 2-inch yellow flowers. At its best in informal settings. Needs plenty of sun and a dry, poor soil. Sow in warm soil. Biennial. Zone 4-9.

178. *V. thapsus*. Common mullein. Height: to 6 feet. Soft toothed leaves are 1 foot long. One-inch yellow flowers form clusters along dense erect spikes. Tolerates dry soil. Sow in warm soil. Do not cover seeds. Biennial. Zone 5-9.

179. *Verbena hastata*. Blue vervain. Height: 4 feet. Narrow, upright plant has thin, tapering leaves and in midsummer, compressed panicles of tiny blue flowers. Sometimes dried as a medicinal. Sow in warm soil. Zone 4-10.

180. *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 a large, meadow garden. Blooms in late summer. Self-sows. Zone 4-8.

181. *V. angustifolia*. Ironweed species. Height: to 4 feet. A shorter version of *V. altissima*, with a more compact flower head. Zone 7-10.

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

183. *Veronicastrum virginicum*. Culver's root. Height: to 7 feet. Unbranching stems produce whorls of narrow, toothed leaves 4-6 inches long. The flowers, borne in 9-inch terminal racemes, are blue or white tinged with pink. Zone 3-8.

WILDFLOWER MIXES

184. **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*), ox-eye daisy (*Chrysanthemum leucanthemum*), common evening primrose (*Oenothera biennis*), dwarf evening primrose (*O. missouriensis*), blue flax (*Linum perenne*), California poppy (*Eschscholzia californica*), and Siberian wallflower (*Erysimum hieraciifolium*).

185. **Northeast Mix.** Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia, Maritime Provinces, and Quebec. Twenty-two species including New England aster (*Aster novae-angliae*), baby's-breath, black-eyed Susan, purple coneflower (*Echinacea purpurea*), lance-leaved coreopsis, flowering flax (*Linum grandiflorum*), foxglove (*Digitalis* sp.), gayfeather (*Liatris spicata*), gilia (*Ipomopsis rubra*), rocket larkspur (*Delphinium* sp.), corn poppy (*Papaver rhoeas*), spurred snapdragon (*Linaria maroccana*), and others.

186. **Southwest Mix.** Arizona, southern California, southern Nevada, and New Mexico. Twenty-one species including Tahoka daisy (*Machaeranthera tanacetifolia*), farewell-to-spring (*Clarkia unguiculata*), prairie coneflower, calliopsis, cornflower (*Centaurea* sp.), prairie flax (*Linum perenne* subsp. *lewisii*), flowering flax, penstemon (*Penstemon strictus*), California poppy, corn poppy, tidy-tips (*Layia platyglossa*), yarrow (*Achillea* sp.), and others.

TREES & SHRUBS

Tree seeds are often difficult to germinate because they have impenetrable seedcoats 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 page 6.) 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 outside, and let nature do the warm and cold conditioning. Conditioning seeds indoors clearly gives the grower more control, and Deno found some



SANDY FLOWERS

seeds 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 seedcoat 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.

187. *Abies koreana*. Korean fir. Height: to 30 feet. A slow-growing, dense, short-needled fir, with purplish, 3-inch cones. Prefers acid soil and will tolerate part sun. Firs have low germination rates. Cold conditioning may help. Zone 5-7.

188. *A. procera* 'Glauc'. Noble fir cultivar. Height: 75 feet in 30 years would be an optimistic forecast for this 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 acid soil in full or part sun. Cold condition. Zone 5-7.

189. *Acer rufinerve*. Redvein maple. Height: 15-20 feet. A large shrub or small tree with arching branches that form a broad, uneven crown. Leaves are not as lobed as most maples and have fine red hairs on the veins. Fall color tends towards red. Part sun in cool, moist, slightly acid soil. Soak seeds overnight. Removal of the seed coat may aid germination. Zone 5-7.

190. *A. tegmentosum*. Manchu-striped maple. Height: 20-30 feet. Pale green, only slightly lobed foliage may turn bright yellow in fall. Bark develops a conspicuous network of white fissures. Part sun in cool, moist, slightly acid soil. Soak seeds overnight. Removal of the seed coat may aid germination. Zone 4-7.

191. *Asimina triloba*. Pawpaw. Height: usually 20 feet but up to 40 feet is possible. A shrub or small tree with oval, droopy leaves and purple, 2-inch flowers in early summer. Greenish yellow fruits taste a bit like banana. Often multiple stemmed and will sucker. Likes moist, slightly acid soil. Will tolerate dense shade but gets scraggly without direct light. Cold condition seeds indoors immediately, then sow in warm soil. Germination should occur 2-3 months after sowing. Zone 5-8.

192. *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 seed in fall. Zone 7-10. In Zone 5-6, beautyberry may still be worth growing but will die back to the ground in winter.

193. *Calycanthus floridus*. Common sweetshrub, Carolina allspice. Height: to 9 feet with a spread of up to 12 feet. A dense, rounded shrub with 2-inch brown, rounded flowers have a strong, spicy scent. Not particular about soil; will tolerate light shade. Cold condition. Zone 4-9.

194. *Cercis chinensis*. Chinese redbud. Height: 10-15 feet. A multi-stemmed, deciduous shrub with heart-shaped leaves. Blooms in early spring before leafing out. Showy purple pink flowers, then 4-inch pealike seed pods. Full sun to part shade in well-aerated, deep soil. Difficult to germinate. Cold condition, then warm condition. It may be necessary to repeat this cycle. An alternative is just to sow the seed outside and wait. Zone 6-9.

195. *Chilopsis linearis*. Desert willow. Height: to 20 feet. This southwestern native has slender willowlike leaves and pink, funnel-shaped flowers borne on terminal racemes in the summer. Do not condition: plant immediately. Zone 8-10.

196. *Chionanthus virginicus*. Fringe tree. Height: 12-20 feet. Gray bark, medium to dark green leaves often lustrous above and paler underneath, turning yellow in fall. Lacy, white, fragrant flowers are borne in 6-8-inch panicles in May and June. By late summer, dark blue grapelike fruits with a stony seed appear. Excellent in groups or borders. Pollution tolerant. Prefers moist, deep, rich, acidic soil. Difficult to germinate. Sow outdoors in fall for germination the second spring. Another approach is to warm condition indoors, then cold condition. Seed should germinate when exposed to warmth a second time. Zone 3-9.

197. *Cornus florida*. Flowering dogwood. Height: usually 20 feet, but 40 feet is possible. Spread may be greater than height. Horizontal branches, starting low on the trunk, give the tree a layered effect. Simple leaves up to 6 inches long have a medium texture. Produces 4-inch flowers with 4 showy, white bracts in spring. Prefers part sun in moist, loamy acid soil. Cold condition immediately. Zone 5-9.

198. *Eriobotrya japonica*. Loquat. Height: 20-25 feet. Evergreen shrub or small tree. Fragrant, rich, glossy foliage with 1 1/2-inch whitish flowers that hang in terminal panicles 6-10 inches long. Widely cultivated in tropics for its fruit, which will only develop in frost-free regions. Full to part sun. No conditioning needed. Zone 8-10.

199. *Hibiscus paramutabilis*. Rose mallow species. Height: to 12 feet with a nearly equal spread. A shrub with lobed, 6-inch leaves and pinkish red bell-shaped flowers. Likes moist, rich soil. Sow in warm soil. Zone 4-9.

200. *H. syriacus*. Rose-of-Sharon. Height: 8-12 feet. Stiffly erect shrub with showy single, 3-inch white, red, pink, or purple flowers in late summer or fall. Yellowish fall foliage. One of the best *Hibiscus* species for northern gardens and very easy to grow. Makes a good hedge or screen. Full to part sun. Germinates easily. Zone 5-8.

SAVE THIS CATALOG!

201. *Koelreuteria 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. It may help to scarify seeds. Warm condition, cold condition, then sow in warm soil. Zone 5-9.

201. *Leucothoe racemosa*. Swamp bowbells, sweetbells. Height: 5-12 feet. Native to the Southeast, this shrub produces racemes of white flowers up to 4 inches long in late spring and early summer. Oval, bright green leaves redden before falling. Will sucker. Prefers moist acid soil in light or heavy shade. Tolerates full sun if kept moist. Do not cover seed. Zone 5-9.

202. *Lupinus arboreus*. Tree lupine. Height: 3-8 feet. Ornamental shrub for mild climates. Short-stalked palmate leaves. Ten-inch racemes of summer flowers, usually yellow, are followed by 3-inch pods containing 8-12 seeds. Easy to grow and tolerant of poor soil, as long as it is well aerated. Scarify seeds, then soak them in warm water. Sow in July or August. Zone 8-10.

203. *Maackia amurensis*. Amur maackia. Height: 20-30 feet with an equal or greater spread. A small rounded tree with foot-long compound leaves. Six-inch spikes of white flowers appear in June and July. Soak seeds in warm water overnight. Zone 3-7.

204. *Macfadyena unguis-cati*. Cat's-claw creeper. A clinging tropical vine with narrow 2-inch leaves. The showy yellow, trumpet-shaped flowers are 3 inches long and nearly as wide. Can take a degree or two of frost. Zone 8-10.

205. *Magnolia macrophylla* 'Julian Hill'. Bigleaf magnolia cultivar. Height: to 40 feet. A large, open magnolia with 2-foot leaves. The white flowers appear in June and measure up to 11 inches across. Best as a specimen, surrounded by a large lawn. Plants have bloomed 9 years after sprouting. Sow indoors. Zone 6-10.

206. *M. stellata* 'Centennial'. Star magnolia cultivar. Height: 15-20 feet with a spread of up to 15 feet. Fragrant, white star-shaped flowers 5 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 acid soil in a protected spot. Avoid a southern exposure, which tends to cause early bud break. Cold condition, then sow indoors. Zone 4-9.

207. *Pinus radiata*. Monterey pine. Height: to 60 feet. Extremely valuable for seaside plant-

ings. Irregular but handsome open habit. Produces 4-6 inch needles and 3-6 inch cones. Native to southern California. Prefers dry soil. Cold condition. Zone 7-10.

208. *Prunus maritima*. Beach plum. Height: 6 feet. A dense, suckering shrub that produces small, white flowers in May and dark red or purple fruits in August. The fruits are useful for jam. Salt tolerant. Prefers a sandy, well-aerated soil. Cold condition. Zone 3-6.

209. *Quercus phellos*. Willow oak. Height: 40-60 feet. Pyramidal in youth, but developing a dense, narrow, willow-like habit. Leaves are yellow in fall. Not particular about soil type. Warm condition, cold condition, then warm condition. Zone 5-9.

210. *Rhamnus purshiana*. Cascara buckthorn. Height: to 20 feet. Large, low-branching, deciduous shrub or small tree. Finely toothed leaves are 8 inches long. Umbels of greenish flowers yield quarter-inch black fruits that attract birds. Tolerates urban conditions. Cold condition. Zone 7-10.

211. *Rhododendron schlippenbachii*. Royal azalea. Height: 6-8 feet with an equal spread. A deciduous shrub with dark green foliage that turns yellow, orange, or crimson in fall. Fragrant, pink flowers appear in May, just as the plant is leafing out. Inflorescence is up to 3 inches across. One of the most beautiful hardy azaleas. Doesn't need soil as acidic as most members of this genus do: will tolerate a pH as high as 7. Sow in warm soil. Zone 4-7.

212. *Styrax japonicus*. Japanese snowbell. Height: 20-30 feet with an equal or greater spread. A small, rounded tree with distinctive, low and wide-spreading branches. Leaves are of a pointed oval shape. White, bell-shaped flowers are borne on pendulous stalks in May and June. Prefers a sheltered site in full or part sun and

moist, neutral to acid soil. Difficult to germinate. Warm condition, cold condition, then repeat the cycle. Zone 5-8.

213. *Viburnum cassinoides*. Withe-rod viburnum. Height: 6 feet with an equal spread. A dense shrub with dark green, oval leaves that color orange-red, crimson, and purple in the fall. Cream-colored flowers in midsummer yield green berries that turn red, then blue, then black in September. Will tolerate part sun. Warm condition, then cold condition. Zone 3-8.

214. *V. lantana*. Wayfaring tree. Height: 10-15 feet with an equal spread. A rounded, multiple-stemmed shrub bearing 5-inch, serrated leaves and in May, cream-colored flowers up to 5 inches across. Winter appearance is somewhat coarse. Will tolerate part sun. Likes a loamy soil but is more drought tolerant than most viburnums. Cold condition. Zone 3-8.

215. *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. Zone 7-8.

216. *Wisteria sinensis*. Chinese wisteria. A woody vine that climbs to 30 feet or more. Somewhat fragrant, bluish violet flowers bloom in pendulous racemes in May. These are followed by velvety seed pods. Grow on a sturdy structure in deep, moist, well-aerated soil. Soak seeds in warm water and sow in fall. Zone 5-8.

HERBS

217. *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.

218. *Anethum graveolens* 'Bouquet'. Dill cultivar. Height: 2-2½ feet. Annual. Feathery leaves and a stalk terminating in an umbel of tiny yellow flowers. The entire plant is aromatic. Sow in warm soil.

219. *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.

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

221. *Eruca vesicaria* subsp. *sativa*. Rocket, rugula. Height: 2½ feet. Annual. White flowers have purplish veins. Dark green leaves have a strong, peppery flavor and should be picked when 4-6 inches long. Prefers light, rich soil. Quick growing and will tend to bolt in midsummer, so it's best to plant in early spring and again in early fall.



Salad burnet, *Poterium sanguisorba*, (#231) is a great herb. The fresh leaves add a refreshing cucumberlike cool flavor to white wines and are a classic addition to that summer favorite, gin-and-tonic. It is also very tasty with cold poached chicken, seafood, green salads, sauces, cold summer soups, and as a flavoring for vinegar.

alkaline soil. Will not tolerate rich or poorly aerated soils. Zone 3-10.

VEGETABLES

222. *Foeniculum vulgare* var. *azoricum*. Florence fennel. Height: to 6 feet. Perennial usually grown as an annual. Upright, with feathery foliage and large umbels of yellow-green flowers. These should be removed as they fade to prevent self-seeding. Licorice-flavored seeds are used in cooking. Stalks are usually eaten blanched.

223. *F. vulgare* var. *azoricum* 'Bronze'. Florence fennel cultivar. Similar to the species but foliage has a pronounced bronze cast.

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

225. *Hedeoma pulegioides*. American pennyroyal. Height: 6-18 inches. Annual. Many branching 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 in the hope of keeping 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.

226. *Melilotus alba*. White sweet clover. Height: 3-10 feet. A biennial usually grown as an annual. A white-flowered clover commonly grown as a green manure, cover crop, or honey plant. Will flower its first year. Not particular about soil.

227. *Ocimum basilicum* 'Crispum'. Sweet basil cultivar. 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 a moist, well-aerated soil.

228. *O. basilicum* 'Genovese Perfume'. Sweet basil cultivar. Height: 24-30 inches. Annual. Very potent: has an intense, perfumy scent. For culture, see 'Crispum', above.

229. *O. basilicum* 'Licorice'. Sweet basil cultivar. Height: 2 feet. Annual. Pink flowers and a strong licorice taste. For culture, see 'Crispum'.

230. *Osmorhiza claytonii*. Woolly sweet cicely. Height: 3 feet. Perennial. Produces large, hairy compound leaves and umbels of tiny white or yellow flowers. The root is aromatic. Sow in warm soil. Zone 3-8.

231. *Poterium sanguisorba*. Burnet. Height: 1-2 feet. Perennial. Small white or rose flower clusters appear in early summer. The finely cut leaves, bunched at the base of the plant, have a cucumberlike flavor. Use them in salads, vinegars, and in sour cream dip. Needs a dry, sandy,

232. *Allium cepa* 'Red Simiane'. Onion cultivar. A sweet onion, with purplish red, elongated bulbs. Maturation time not specified. Needs light, fertile, deep soil. Plant 1/4 inch deep in warm soil. Can be sown in fall south of Zone 7.

233. *Brassica 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.

234. *B. juncea*. Chinese broadleaf mustard. Height: 1 1/2 feet. Broad, bright green, oval leaves are tender and very mild tasting. Matures in 45 days. Sow in spring and fall. Plant seeds 1/2 inch deep about 18 inches apart.

235. *B. juncea* var. *crispifolia* (*B. japonica*). Chinese potherb mustard. Height: 1 foot. A very mild-tasting oriental green with elegant, feathery foliage. Fast-growing. Harvest young leaves or more mature heads. Will produce greens throughout the growing season.

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

237. *B. oleracea* 'Green Comet Hybrid'. Broccoli cultivar. Dense uniform heads made this broccoli an All-America Selections winner. Maturation is said to be extra early, but a time is not specified. Needs a moist site and cool weather. Start seeds indoors. Plants can be set out when they're 6 inches high, even before the last frost. Broccoli can be grown as a fall crop and south of Zone 7, as a winter crop.

238. *B. rapa*. Chinese cabbage, pak choi. Height: 1 1/2 feet. Important in Asian cuisine. Flat, narrow leaves surround a white stalk. Both leaves and stalk are crisp and mild flavored. Matures in 50 days. Since this is a short-season crop, resow every 3 weeks or so. Will bolt in hot weather. Mulch to keep the soil cool.

239. *Capsicum annuum*. Christmas pepper cultivar. Height: 30 inches. A shrubby plant bearing small, bright red, very hot peppers. Matures in 120 days. Because it's so decorative, this pepper is often grown in containers to be brought inside before frost. Needs plenty of moisture. Sow in warm soil.

240. *C. annuum*. A mixture of hot pepper cultivars. An assortment of colors, shapes, and flavors. Includes large, medium-hot varieties like 'Anaheim M' and 'Hungarian Yellow Wax' as well as smaller, very hot varieties, like 'Jalapeno M', 'Red Chili', and others.

241. *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.

246. *Chenopodium quinoa*. Multi-head qui-

noa. Height: 5-6 feet. Flowers in panicles of red, orange, yellow, purple, or mauve. Small, oval, dull blue-green leaves can be used as salad greens and the seed heads can be cooked or ground for flour. Matures in 100 days. Detailed use and growing sheet will be enclosed with order. Sow in fall.

247. *Cucumis melo* 'Galia'. Melon cultivar. Fruits have greenish gold netted skin and weigh up to 3 pounds. Cool summers might be beneficial. Matures in 85 days.

248. *C. sativus* 'Lemon'. Cucumber cultivar. This old American favorite produces fast-growing, light yellow fruits that resemble lemons. The mild, crunchy cucumbers can be eaten raw or pickled. Harvest when young. Vine does best with a trellis support. Matures in 61 days. If sowing indoors, use peat pots to minimize transplant shock.

249. *C. sativus* 'Pepino Poinsett 76'. Cucumber cultivar. Dark green fruits. Long-bearing and does well in heat. Matures in 60-65 days.

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

251. *Cucurbita maxima* 'Atlantic Giant'. Pumpkin cultivar. Sprawling vines produce pumpkins that may weigh over 300 pounds. Matures in 120 days. Does best in loamy or sandy soil. Sow in mounds at least 4 feet apart.

252. *C. maxima* 'Green Hokkaido'. Squash cultivar. Produces a flattened, 3-6-pound blue-green squash with yellow-orange flesh. These are dry with a nutty taste. They keep well and are good for baking. Matures in 95 days. Sow in mounds in warm soil.

253. *C. mixta* 'Santo Domingo Cushaw'. Winter squash cultivar. Crook-necked fruit has a faintly mottled green and tan skin. The flesh is pale yellow-orange. Maturation time not specified. After danger of frost has passed, sow in mounds about 4 feet apart.

254. *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 hills 3 feet apart.

255. *Daucus carota* var. *sativa* 'Thumbelina'. Carrot cultivar. Yields sweet, round, golfball-sized roots. Ideal for window boxes and other containers. Maturation time not specified. 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.

256. *Lactuca sativa* 'Cimmaron'. Romaine lettuce cultivar. A bronze red variety that dates from the 18th century. Maturation time not specified. Resists bolting, so it can be harvested over a long period. 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.

257. *L. sativa* 'Dapple Butterhead'. Head lettuce cultivar. Crisp, green leaves have bright red edges. Resistant to tip burn and bottom rot.

Maturation time not specified. For culture, see 'Cimmaron', page 17.

258. *L. sativa* 'Red Sails'. Leaf lettuce cultivar. Beautiful bronze red leaves are arranged in an open head, which allows more sunlight-induced vitamins to form in the inner leaves. Matures in 40 days. Sow every 2 weeks for a continuous crop. For culture, see 'Cimmaron'.

259. *Lagenaria siceraria* 'Birdhouse'. Gourd cultivar. A rapid grower with cucumberlike vines and foliage, yielding gourds up to 1 foot long in a variety of shapes. Some look like bottles, others like pears with long necks. Matures in 90-100 days. Needs moist, fertile soil. Best grown on a trellis or other support.

260. *Lycopersicon lycopersicum* '862 Glamour'. Tomato cultivar. A dependable old cooking variety. Vine is often grown on the ground without support. Matures in 74 days.

261. *L. lycopersicum* 'Schimmeig Striped Hollow'. Tomato cultivar. Fruits are red with orange stripes and hollow like a bell pepper. Useful for stuffing. Can be baked or eaten raw. Matures in 80-90 days. Sow in warm soil.

262. *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.

263. *P. vulgaris* 'Chapman's Horticultural'. Bean cultivar. Yields a large quantity of beans mottled white and maroon. Maturation time not specified.

264. *P. vulgaris* 'Jacob's Cattle' or 'Trout Bean'. Bush bean cultivar. The beans, speckled maroon and white, are used dry for soups and baking. Matures quickly. Sow in warm soil.

265. *P. vulgaris* 'Louisiana Purple Pod'. Snap pole bean cultivar. Gorgeous purple flowers and

Minutes from the garden to the kettle—that's the taste difference between corn bought at the store or even the farmer's roadside stand and corn harvested from your own garden. Another reason for growing your own corn is that different varieties have distinct flavors. 'Io Chief' corn (#279), an All-America Selections winner, is a delicious variety that matures in 89 days and is drought resistant. Ears from a planting of a given variety mature at about the same time. If you want ears over a long period, use varieties with different maturity times or plant the same variety at two-week intervals.

pod, yielding large quantities of light brown beans. Delicious raw or cooked. Matures in 70 days. This bean is often trained to climb up corn stalks.

266. *P. vulgaris* 'Ruth Bible'. Pole bean cultivar. An heirloom grown by a Kentucky family since the 1830s. Vigorous grower yields 3½-inch tan-colored pods. These should be picked when young. Matures in 52 days.

267. *P. vulgaris* 'Thousand-to-One'. Snap bush bean cultivar. Height: 15 inches. A very productive heirloom variety with black and tan striped beans. Matures in 60 days.

268. *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.

269. *Pisum sativum* var. *macrocarpon* 'Blizzard'. Snow pea cultivar. Height: 30 inches. Heavy yields of tender 3-inch pods ideal for stir-frying. Matures in 63 days. Peas do best in a cool, moist situation. Sow them as soon as the ground can be worked and again in late summer for a second harvest. Moisten the seeds, then plant them in trenches about 1½ inches deep. Space the seeds about 2 inches apart. Stake when plants are a foot tall.

270. *P. sativum* var. *macrocarpon* 'Dwarf Green Sugar Pea'. Pea cultivar. 2-3-inch pods on 3-foot vines. Pods should be picked before they swell. Matures in 65 days. For culture, see 'Blizzard', above.

271. *P. sativum* var. *sativum* 'Multistar'. Pea cultivar. Three-foot vines yield a wrinkle pea, ideal for freezing. Matures in 75 days. For culture, see 'Blizzard'.

272. *P. sativum* var. *sativum* 'Waverex Petit Pois'. Pea cultivar. Extremely productive 18-inch vines yield small tender, very sweet peas. Matures in 65 days. For culture, see 'Blizzard'.

273. *Solanum melongena* var. *esculentum* 'Asian Bride'. Eggplant cultivar. Height: 2½ feet. An upright bush yielding white and lavender fruit. Maturation time not specified. It's generally best to start eggplants indoors, in peat pots to minimize transplant shock. Transplant to warm soil.

274. *S. melongena* var. *esculentum* 'Early Beauty'. Eggplant cultivar. Height: 2-3 feet. Vigorous plants produce many small, dark purple fruits with very firm flesh. Has a long bearing season. Matures in 62 days. For culture, see 'Asian Bride', above.

275. *S. melongena* var. *esculentum* 'Lao Green Stripe'. Eggplant cultivar. Height: 3 feet. Upright plants yield green- and white-striped fruits 1-2 inches in diameter. Matures in 120 days. For culture, see 'Asian Bride'.

276. *Tragopogon porrifolius*. Salsify, vegetable oyster. A clump of flat, narrow leaves like a large garlic plant, atop a narrow, foot-long root that can be steamed, stewed, or fried. Tastes like oysters. Matures in 120 days. Requires a light, deep, well-aerated loam. Sow ½ inch deep. Harvest after first frost for the best flavor.

277. *Vignis unguiculata* subsp. *unguiculata* 'Whippoorwill'. Cowpea cultivar. Running vines reach 5 feet and yield 6-inch purple-green pods, each containing 16 large seeds. When dried, peas are a speckled brown. Matures in 90 days. Nontwining vines can be staked. Sow 2 inches deep at 18-inch intervals.

278. *Zea mays* 'Indian Popcorn'. Popcorn cultivar. Height: 5-8 feet. Each plant yields up to 3 ears of tasty, multicolored popcorn. Kernels are white, yellow, red, purple, and brown. Matures in 105 days. Corn does best in rich, well-aerated sandy soil with plenty of water. To improve pollination, it's best to grow corn in blocks rather than in one or two rows. Sow in warm soil.

279. *Z. mays* 'Io Chief'. Sweet corn cultivar. Height: 6½ feet. This All-America Selections winner produces 10-inch ears of sweet yellow corn. A low-water variety that matures in 89 days. For culture, see 'Indian Popcorn', above.

280. *Z. mays* 'Rainbow'. Popcorn cultivar. Height: 4-6 feet. Ears contain kernels in just about every color possible for corn. Maturation time not specified. For culture, see 'Indian Popcorn'.

281. *Z. mays* 'Super Sweet Hybrids'. Sweet corn cultivar. Large, yellow ears with up to twice the sugar of ordinary sweet corn. Matures in 80 days. Cross-pollination with other corn varieties may affect yield: sow at least 350 feet from other varieties. For culture, see 'Indian Popcorn'.

282. *Z. mays* 'Two's Sweeter'. Sweet corn cultivar. A new variety yielding very sweet 7-inch yellow and white ears. Matures in 78 days. For culture, see 'Indian Popcorn'.

GREENHOUSE

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

283. *Annona cherimola*. Cherimoya. Height: 20 feet. Evergreen tree. Leaves are oval or lance-shaped, velvety beneath. Nodding, usually solitary flowers are strongly aromatic and the four-inch fruits have a custardlike flavor. Hand-pollinate to induce fruiting.

284. *Brugmansia* × *candida*. Angel's trumpet. Height: to 20 feet in the wild; perhaps 6 feet in



SANDY FLOWERS

cultivation. A small tree native to the Andes. Large, velvety, elliptical leaves and foot-long, white trumpet-shaped flowers. The flowers are pendulous. **NOT AVAILABLE** seeds yield a folk medicine. Hardy only to Zone 10b. Often used as a container plant farther north, or planted outside where it may persist for several years, dying back to the ground each winter.

285. *Caesalpinia mexicana*. Height: 30 feet. A small tree native to Mexico. Large bipinnate leaves and panicles of yellow flowers. Soak seeds overnight in warm water before sowing.

286. *Carica papaya*. Papaya. Height: to 25 feet. Generally branchless trunk carries palmate leaves 2 feet in diameter on 2-foot stalks. Fragrant yellow flowers with 1-inch petals form clumps, mainly on female plants. Melonlike, oval fruit has a thick, yellowish orange skin when ripe. Soak seeds overnight in warm water before sowing. Not hardy beyond Zone 10.

287. *Cassia alata*. Candle-bush, candlestick senna. **NOT AVAILABLE** with large, yellow flowers spikes. Blooms in winter.

288. *Ephedra nevadensis*. Mormon tea. Height: 6-7 feet. **NOT AVAILABLE** shrub can be erect. Similar to United States and Mexico. Prefers porous, slightly dry soil.

289. *Lithops* sp. Living stone species. Height: 1/2 inch. The twin leaves that make up the body of the plant resemble pebbles. Leaves of this species are red. In fall, a yellow flower emerges from the fissure between them. Needs full sun in dry sandy soil. After the first year, it should be kept moist in summer but dry from fall to early spring. Sow in warm soil.

290. *Mammillaria multidigitata*. Pincushion cactus species. Height: 4 inches. Clumps of round heads produce yellow-green flowers that last all summer. Sow in warm soil. Germination can occur in anywhere from 5 days to several months.

291. *Podranea ricasoliana*. Pink trumpet vine. A fast-growing, twining vine that can grow to 12 feet or more. Native to South Africa, it has evergreen compound leaves and loose panicles of fragrant trumpet-shaped flowers. The flowers are pink with some red striation.

292. *Sesbania tomentosa*. 'Ohai. Height: 4 feet. A rare Hawaiian shrub. Densely branched with fine, compound leaves covered with woolly hairs. Produces racemes of 1 1/2-inch reddish orange, pea-type flowers. Extremely showy. Usually lives only about 5 years. Needs full sun. Notch seeds on the side opposite the scar (hylum) and soak them overnight. Will not tolerate any frost.

293. *Simmondsia chinensis*. Jojoba. Height: to 7 feet. This slow-growing evergreen shrub is native to southern California. Its numerous, stiff branches are covered with oval, leathery leaves. It's dioecious, which means the sexes occur on different plants. Takes about 3 years to flower. The fruits yield jojoba oil. Likes to be hot and dry. Sow in warm soil. Produces a long taproot, which resists transplanting. Not hardy beyond Zone 10.

HOW TO ORDER

- ◆ List selections by number only.
- ◆ Attach the mailing label from this issue or fill in your name, address, and member code number, located at 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 below.

- ◆ To increase your chances of getting your first-choice seeds, please mail us your order form as soon as possible.

- ◆ The cut off date for receiving seed orders is May 1, 1994. No orders will be filled after this date.

- ◆ Keep this catalog! You will need the catalog 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 seed offered in this annual program is free to our members, we do request a voluntary contribution to help defray shipping and handling costs.

We request a minimum of \$3 if you

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Additional contributions to the seed program let us employ horticultural interns to help coordinate the seed program and mail surplus seeds to schools and other nonprofit groups. This year members who contribute \$10 or more to the seed program when they order will receive three packets of easy-to-grow seeds as a thank you. Bonus seeds are:

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MAIL TO: AHS Seed Program, 7931 East Boulevard Drive, Alexandria, VA 22308-1300.



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SEED BOOKS

Saving Seeds

Marc Rogers

Softcover. Retail price: \$9.95. AHS price: \$8.75.

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Any gardener can become a successful seed saver. This book will tell you 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. Marc Rogers discusses each vegetable and flower in detail and answers hundreds of gardening questions. Seed-saving can be a fascinating lifelong hobby and *Saving Seeds* can help you get started. 1992. 185 pages.

The Seed Finder

John Jeavons and Robin Leler

Softcover. Retail price: \$4.95. AHS price: \$4.50.

Book code: TSP 020

Where do you find seeds for huckleberries, millet, redwood trees, carob, or rose-scented geraniums? *The Seed Finder* lists thousands of varieties from over 20 seed houses that serve home gardeners. An organized reference for useful, unusual, and heritage crops, it includes new cultural directions for most vegetables and tips that every gardener will appreciate. Illustrated with old engravings, this unusual book is the result of over a decade of research. By John Jeavons and Robin Leler, *The Seed Finder* is your key to finding the best and most unusual seeds. 1983. 151 pages.

Fruit, Berry and Nut Inventory

Edited by Kent Whealy and Steve Demuth

Softcover. Retail price: \$22. AHS price: \$19.75.

Book code: TSP 040

This second edition is a comprehensive inventory of 309 mail-order nursery catalogs. It describes 5,810 fruit, berry, and nut varieties, and contains a coded list of U.S. sources that offer each one. Commercially available seeds and plants can be scanned for varieties that are best for specific climates or resistant to local diseases and pests. Northern and high-altitude growers will find the cold hardy, short season varieties they need. Southern gardeners can use the book to locate low-chill fruits. 1993. 520 pages.

The Bernard E. Harkness Seedlist Handbook

Compiled and Updated by

Mabel G. Harkness

Softcover. Retail price: \$29.95. AHS price: \$26.95.

Book code: TIM 030

First published in 1974, the original *Seedlist Handbook* grew from Bernard E. Harkness's experience as seed direc-

tor for the American Rock Garden Society. This second edition, compiled and edited by his widow, has been expanded and revised. Most gardeners are familiar with only a fraction of the many splendid alpine plants available to them. This handy guide provides the basic information needed to use alpine seed lists. An essential reference work for every alpine and rock gardening enthusiast. 1993. 506 pages.

Collecting, Processing and Germinating Seeds of Wildland Plants

James A. Young and Cheryl G. Young

Hardcover. Retail price: \$24.95. AHS price: \$22.50.

Book code: TIM 060

The growing number of gardeners who are intrigued by the possibilities of native plants will find this encyclopedic treatment of seed collection and germination—from annuals to trees—an invaluable resource. Practical methods are presented in an easy-to-understand way, making this an asset for both amateurs and professionals. 1986. 236 pages.

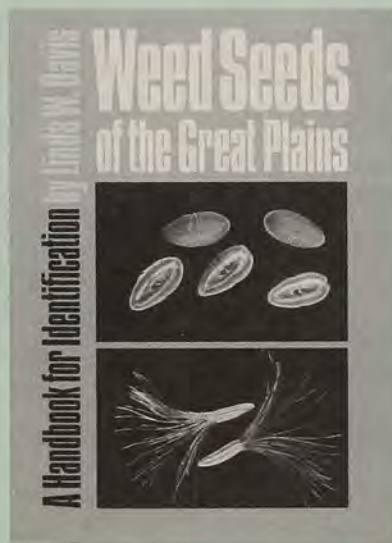
Weed Seeds of the Great Plains

Linda W. Davis

Hardcover. Retail price: \$25. AHS price: \$22.50.

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Identifying weed seeds before they are inadvertently planted is a way to avoid using herbicides or mechanically removing them later. Lavishly illustrated, this book will help readers identify the seeds of 280 species of weedy plants of the Great Plains, including weeds commonly found along roadsides, in lawns, in crops, and in rangeland. It includes a color photo, a black-and-white life sized silhouette, a full description, and scientific and common names for each species. An illustrated glossary clarifies technical terms. 1993. 208 pages.



Seeds of Woody Plants in North America

James A. Young and Cheryl G. Young

Hardcover. Retail price: \$49.95. AHS price: \$44.95

Book code: TIM 050

Long unavailable, this greatly revised edition of the near-legendary *Agriculture Handbook 450* is one of the most useful source books ever published by the U.S. Forest Service. The present volume includes 386 genera, more than double the number previously covered, and adds more than 1,000 literature citations, reflecting the tremendous increase in knowledge of the propagation of woody plant species in the past two decades. The book is also useful for seed identification. 1992. 414 pages.

OTHER TITLES

Maples of the World

D. M. Van Gelderen, P. C. De Jong, and H. J. Oterdoom

Hardcover. Retail price: \$59.95. AHS price: \$53.95.

Book code: TIM 080

This is the first truly comprehensive treatment of the genus *Acer* even though maples have long played a key role in the landscape. Among its topics are the history of maple names, maple structure, native habitats and distribution, diseases and pests, propagation and reproduction. More than 200 color photos of significant species and cultivars make this book of great importance to botanists as well as to horticulturists, landscape architects and designers, plant growers and retailers, and gardeners. 1994. 448 pages.

The American Horticultural Society Encyclopedia of Gardening

Edited by Christopher Brickell and Elvin McDonald

Hardcover. Retail price: \$59.95. AHS price: \$49.95.

Book code: GAR 016

With 3,500 illustrations, including 400 series of step-by-step photos, this is the only gardening guide you'll ever need. The book is packed with basic and advanced gardening techniques and includes practical and informative tips on creating and maintaining your garden. Selection and cultivation of important plant groups—like hostas, daylilies, and irises—are highlighted. 1993. 648 pages.

The Plant Care Manual

Stefan Buczacki

Softcover. Retail price: \$26. AHS price: \$23.25.

Book code: GAR 011

Illustrated with more than 350 color photos and drawings, *The Plant Care Manual* tells all you need to know to

GARDENING BOOKS

care for your plants and explains how to rejuvenate old or neglected plants. It covers all the most commonly grown shrubs, climbers, herbaceous perennials, bulbs, rock and water plants, and trees. Stefan Buczacki gives full advice on soil, site, watering, feeding, pruning, pests and diseases, propagation and troubleshooting. 1993. 240 pages.

The Hillier Colour Dictionary of Trees and Shrubs

Compiled by Hillier Nurseries
Hardcover. Retail price: \$39.95. AHS price: \$35.95.
Book code: TRA 090

This easy-to-use color reference guide, now revised and updated, lists over 2,500 of the most useful woody plants for today's gardener. It provides concise descriptions and cultural notes for trees and shrubs, conifers and climbers, enabling the gardener to identify a vast array of plants quickly and accurately. Complete with advice on pruning, a glossary of botanical terms, and a comprehensive guide to choosing trees and shrubs for specific purposes, this invaluable reference book is the ideal companion when selecting new plants or identifying those already in the garden. 1993. 272 pages.

Index of Garden Plants— The New Royal Horticultural Society Dictionary

Mark Griffiths
Hardcover. Retail price: \$59.95. AHS price: \$53.50.
Book code: TIM 012

Based on the four-volume set, *The New Royal Horticultural Society Dictionary of Gardening*, this index supplies authoritative names for more than 60,000 ornamental and economic plants. The correct identifica-

tion and naming of plants is of ongoing concern to gardeners and horticulturists. Progress in botanical research leads to changes in nomenclature, and this volume uniquely reflects the current state of taxonomy. Plant names familiar to gardeners are retained as cross references. Each of the plants named is described concisely, including range and hardiness ratings. All who are involved with plants and gardens will find this book an excellent reference guide. 1993. 1,200 pages.

The Ortho Home Gardener's Problem Solver

Softcover. Retail price: \$34.95. AHS price: \$31.50.
Book code: ORT 013

Many gardeners have consulted *The Ortho Problem Solver* at their local nurseries. Now you can bring much of the same information to your own library. Photos and text illustrate 672 specific problems and offer a variety of solutions. Introductory text for each chapter covers common problems in more detail. An extensive index makes it easy to locate each topic. 1993. 400 pages.

Scent in Your Garden

Stephen Lacy
Hardcover. Retail price: \$40. AHS price: \$34.
Book code: LIT 017

Although scent has the power to turn an ordinary garden into a bewitching one, it is often perceived as an inessential aspect of gardening. This book makes a serious and elegant attempt to change that misconception. Over 1,000 plants worth growing for their fragrance as well as their beauty are cataloged and described in exquisite detail. Within the theme of scent, Stephen Lacy covers other aspects of gar-

dening, including visual impact, seasonal changes, and gardening architecture. 1991. 192 pages.

The Indoor Potted Bulb

Rob Proctor
Hardcover. Retail price: \$20. AHS price: \$18.
Book code: SIM 014

The Indoor Potted Bulb introduces a variety of bulbs that will thrive in most homes and provide a continuous parade of dazzling flowers. The text also offers options to southern and western gardeners whose climates are usually too warm to grow tulips, daffodils, and most other traditional spring bloomers. Growing bulbs indoors is a rewarding adventure for novice or experienced gardeners. 1993. 128 pages.

The Outdoor Potted Bulb

Rob Proctor
Hardcover. Retail price: \$20. AHS price: \$18.
Book code: SIM 015

In this volume, the companion to *The Indoor Potted Bulb*, Rob Proctor tells the secrets of outdoor bulb gardening, from adjusting to different climate conditions to achieving longer-lasting blooms. Throughout the country and through all the seasons, ever-changing pots of colorful bulbs can invigorate the outside space of a home. The expert horticultural advice makes this an invaluable guide for gardeners of all abilities and from all regions. 1993. 128 pages.

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REPORT FROM THE ANNUAL MEETING

More than 100 members of the American Horticultural Society joined Board Members, award winners, and speakers at this year's Annual Meeting at Walt Disney World Resort in Lake Buena Vista, Florida. Here are a few of the highlights.

MADE IN THE SHADE

Ken Druse once dreamed of a fairly elaborate garden—something with a Greek temple, perhaps. But reality is a 21- by 50-foot yard behind a Brooklyn brownstone.

Not only is space in short supply, but so is sun. The yard faces east and begins to get shadow shortly after noon, and a Norway maple blocks the southern exposure. Thus the author of *The Natural Garden* began research for *The Natural Shade Garden* out of necessity.

Now his garden includes a fish pond with a stream and waterfall. A path leads from a paved patio through woodland flowers over a bridge to a raised area where Adirondack chairs invite resting and reflecting. Next to the pond is a small rock garden.

Owners of shady gardens can bring light into these spaces in a number of ways, such as painting walls or fences white to reflect a bit more sun. Druse achieved even more with mirrors he found in the street.

White flowers light up a garden, and one of the most stunning for a woodland is *Trillium grandiflora* 'Flore Pleno'. Unlike the single forms of our native trilliums, it doesn't grow in the wild, so we can buy it without worrying whether it has been collected from its native habitat.

Pale or variegated foliage is another possibility. "A lot of gardeners don't like variegated plants and say they look unnatural," he said. Then they usually find one that changes their mind about the whole group. For Druse, it was the variegated porcelain berry, *Ampelopsis brevipedunculata* 'Elegans'. The nonvariegated version can become weedy and Japanese beetles love it, he noted. "If you get one of the species, give it to your neighbor," he joked.



BRIDGET FLINT

Suzanne Bales escorts Ken Druse at the Annual Awards ceremony.

A photo of his garden in fall prompted an audience member to ask about the gold-leafed shrub glowing amid the green—a cut-leaf staghorn sumac, *Rhus typhina* 'Lacinata'. Sumacs provide stunning fall color but are often overlooked as garden plants, Druse said.

Vines are a space-conserving addition to a small shade garden, and Druse employs many, including 'Gold Flame' honeysuckle and several clematis. Most hybrid clematis need to climb into sun. 'Nelly Moser' will tolerate more shade, he said, and while its flowers are fleeting it makes ornamental seed heads that are striking in a dimly lit space.

If you're going to build a path through your shade garden, use natural materials, said Druse. "Anyone who wants white rock is attending the wrong lecture." But pea gravel looks like the little rounded pebbles you might see at the bottom of a stream and has the added advantage of reflecting light.

Druse also likes pine straw, but he warned that it creates slippery footing on slopes and should not be collected from the wild.

Asked what he uses for mulch, Druse replied that he really doesn't need it. "I don't clean up in fall. I leave the litter where

it falls. I have so many plants there is really no room for weeds." In fact, all that organic matter has led to a rather unusual problem: worms have churned up the soil so much that some plants nearly fall over from lack of root contact. Druse appealed to AHS members for ideas. "I'm open to trying any nontoxic solution."

Druse won this year's AHS Award for Horticultural Writing. *The Natural Garden* is available from the AHS Horticultural Book Service for \$30 and *The Natural Shade Garden* for \$35. Use the form on page 22 to order.

ORNAMENTAL BOUNTY

Once you're hooked on flowers, it isn't enough just to have them outdoors. Garden writer Suzanne Bales is constantly finding other ways to bring flowers indoors:

Use this season's weary poinsettia—or another "flat" flower—like a doily between a clear plate and a china one.

Use vines to create a garland around a table skirt. Some of Bales' favorites are honeysuckle, sweet autumn clematis, and sweet peas. Attach them with straight pins.

Look to the garden for vases. Sweet peppers, cabbages, and zucchini will hold water. Make an arrangement out of vegetables. Finding herself with one of those baseball bat-sized zucchinis, Bales made a peacock using yellow peppers for the head and neck.

Candying flowers is a good activity with children. Paint beaten egg white onto violets, pansies, roses, or scented geraniums and sprinkle them with superfine sugar. After drying, these can be kept up to three years in an airtight jar and used to decorate desserts or eaten as snacks.

Freeze violets in ice cubes as a surprise with cold drinks.

Sprinkle rose petals on the dinner table to add an air of lavish abandon.

These ideas, and many others, can be found in Suzanne Bales' book, *Gifts From the Garden*, available from the AHS Horticultural Book Service for \$18. Use the form on page 22 to order.

COMPOST CONSUMERISM

When you dine at home, you have a pretty good idea about what's in the casserole. When you dine out, it's an act of faith in the local health department.

Similarly, when you put your homemade compost on your garden, you can be sure it contains no chemicals that will leach into your tomatoes. If you elect to buy compost, however, there is little regulation over what it contains, or what the manufacturer has to tell you about it.

Roy Mecklenberg, manager of Walt Disney World Nursery and Tree Farm, urged his Annual Meeting audience to hold producers of compost to more exacting standards. "Demand to know how much nitrogen it contains," he suggested. "It can vary from seven percent to less than one percent. Ask what their pasteurization temperature is."

Compost that reaches 180 degrees eliminates disease organisms and weed seeds. Research suggests that such "well-cooked" compost is a perfect medium for the potted plant industry, because it eliminates the need to drench the soil with fungicides.

Mecklenberg noted that there are now many sources of commercial composts, and each has strengths and weaknesses.

Sewage sludge is low in potassium, but contains minor elements needed by plants. The presence of heavy metals was a serious drawback in the past, but there are now Environmental Protection Agency standards regulating the metal content of composted sludge. Nevertheless, Mecklenberg said he would not use any sludge product on edible plants.

Municipal compost, he said, "includes everything. They do take out the bikes, stoves, and refrigerators, but you'll still find bits of plastic, glass, and metal." In addition, he said, it has a very low pH.

Manufacturers of compost from food waste can virtually put together their own recipes, he said, and compost made from the by-products of various industries will vary even more in its properties.

When your home compost gets too wet and heavy to turn it can become anaerobic, slowing decomposition and causing unpleasant odors. The vast quantities of material decomposing in commercial production sites make all the steps—particularly proper aeration—even more crucial. To speed the process, moisture needs to be around 50 percent, and the carbon-nitrogen ratio of the materials being composted should be about 30-to-one. "In the back yard, who really cares how long it takes?" asked Mecklenberg, who confessed that he never turns his own compost. An audience



BRIDGET FLINT

Disney landscape designer Morgan "Bill" Evans, left, receives the AHS Annual Landscape Design Award from President Marc Cathey during ceremonies in the Brown Derby restaurant at Disney-MGM Studios. Applauding at the right is Katy Moss Warner, general manager of horticulture at Walt Disney World and an AHS Board Member.

member asked if Mecklenberg thought viruses from diseased plants could survive the composting process. "I wouldn't worry about it. If you mentioned that to virologists they would just laugh, because they can't grow viruses in the lab."

There are some problems associated with using unfinished compost, he noted. Compost should be fine enough to pass through a three-eighths inch screen, because undecomposed wood can tie up oxygen. When compost is ready it will smell like good earth when it's turned over, from the billions of soil microbes called actinomycetes. For those still needing arguments in favor of composting—to persuade themselves or neighbors—Mecklenberg said that home composting can reduce one family's trash by 450 pounds each year. "And of course, they should be buying less peat moss and fertilizer, and there won't be so many trucks taking their trash to the landfill."

COMMON-SENSE ADVICE

American gardeners, André Viette has a message for you. "The front yard! You're throwing it away!" he exclaimed during his Annual Meeting lecture. "It's all gum drops and lollipops." Viette showed a slide of that suburban cliché: evergreen foundation shrubs butchered into little buns. "Send me a slide of a good front yard," he urged listeners.

Viette, one of the nation's premiere perennial growers, noted that it was annuals that made Americans love color in their yards, and some gardeners still aren't planting perennials because they have a limited bloom time. "*Verbena canadensis* 'David' blooms for five months!" Viette said. Others seem to think that perennials are a lot of work. Nothing could be easier than daylilies, which in addition to their many colors, offer variation in size and bloom time. "People should think of perennials as trees and shrubs," he said: long-term investments that pay big dividends with little work. His own five-acre Virginia garden is maintained with 12 hours of work a week. "Gardeners should have time for golf, bridge, hiking, and ballet lessons for the children," he said. By March, most of his intensive garden work is done.

He maintains that gardening is for the most part just common sense, but he feels that it has been made more difficult with a lot of bad advice and wrong information. For example, gardeners with drainage problems are still told to add sand to their soil. "Here's what we learned at Cornell University," said Viette. "Sand plus clay equals cement."

Not all good horticultural advice comes from formal education, of course. Viette recalls that when he was fresh out of Cornell graduate school, he was convinced of the necessity for the standard commercial 5-10-5 fertilizer. He had less than pleasant memories of the many times his father, the founder of the nursery, made him shovel manure at the local dairy. He now recognizes that the elder Viette was on the right track, he says. He now prefers to use natural liquid fertilizers, such as fish emulsion and seaweed, and organic granular fertilizers, because they contain micronutrients as well as nitrogen, potassium, and phosphorous.

Even gardeners who religiously amend their soil only with manure, compost, and other natural products sometimes worry that certain leaves, especially oak leaves, will make their soil more acidic. But Viette has found that leafmold is basic. "We even mixed peat with our leafmold, and still got a pH of 7.8," he related.

And he strongly disagrees with advice to water plants a small amount each day with underground irrigation systems. "This advice looks like it's written for engineers and plumbers," he said. If the fable of the ant and the grasshopper were recast for gardeners, it would be the grasshopper who was watering each plant a little on a hot day, while the cautious ant, mindful that the soil should have plenty of moisture in reserve, watered deeply, slowly, gently, and less often.

DESIGNER CHAIRS AHS BOARD

As of the Annual Meeting, Sarah S. (Sally) Boasberg, a garden designer living in Washington, D.C., is the Chairman of the Board of Directors of the American Horticultural Society.

Boasberg received her bachelor's degree from Smith College, where she was a Phi Beta Kappa, and a certificate in landscape design from George Washington University, where she now teaches courses in the history of landscape and garden design. She has been a member of the AHS Board and its executive committee since 1990.

She is also a member of the American Society of Landscape Architects' Open Committee on Landscape Preservation, the Committee on Historic Landscapes of the U.S./International Commission on Monuments and Sites, the board of advisors of the Catalog of Landscape Records in the United States, and the advisory committee of the William Paca Garden in Annapolis, Maryland.

She has lectured throughout the United States, including the AHS "Great Gardeners of America" lecture series at AmeriFlora '92 last year in Columbus, Ohio, and the lecture series currently appearing in major cities under the auspices of the New York Botanical Garden.

She has served as trustee of a number of organizations, including Smith College, Knox College, the Washington Opera, and the National Cathedral School. Several of her garden designs have appeared in *Home* magazine.

In the past, the AHS Board of Directors has been chaired by its President. Under bylaw changes approved at the October Annual Meeting, the President is now the chief executive officer of the staff.



KATHLEEN FISHER

Sarah S. Boasberg.

AHS CALENDAR OFFER!

1994 EARTH FRIENDLY GARDENING CALENDAR WRITTEN BY ELLEN HENKE, PHOTOGRAPHED BY GEORGE M. HENKE

The American Horticultural Society is pleased to offer "Earth Friendly Gardening" as its 1994 calendar selection. This beautiful wall calendar provides advice on choosing native plants and time-honored hardy plants, "ecoscaping," composting, pesticide-free gardening, and more—all the information a gardener needs to create an earth-friendly garden. Ellen Henke, who holds a doctorate in botany from Columbia University, is well known to television and radio audiences as "America's Plant Doctor."



The calendar is 14" x 10 3/8" and includes 12 full color photographs. One calendar is just \$11 postage paid for AHS members. Each additional calendar is only \$9.50 postage paid. Virginia residents please add 4 1/2% sales tax. To order fill in the coupon and mail to AHS Calendars, 7931 East Boulevard Drive, Alexandria, VA 22308-1300.

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AHS BULLETIN BOARD

BOARD NOMINEES SOUGHT

American Horticultural Society members are invited to nominate other members to positions on the AHS Board of Directors. Nominations must be accompanied by a short résumé of the candidate and a petition signed by at least 25 AHS members. The deadline for nominations is August 1. Materials should be sent to Beverley White Dunn, Nominating Committee Chairman, American Horticultural Society, 7931 East Boulevard Drive, Alexandria, VA 22308-1300.

RICHARD WHITE DIES AT 96

Richard P. White, who served as President of the American Horticultural Society in 1960, died October 9 in a Williamsburg, Virginia, nursing home after a short illness. He was 96.

White obtained his doctorate in plant pathology from Cornell University. From 1921 to 1927 he was a member of the department of plant pathology at Kansas State Agricultural College. He then spent 11 years in the plant pathology department at Rutgers University's New Jersey Agricultural Experiment Station.

White held many positions in association management, beginning as secretary of the National Shade Tree Conference in 1933. He was named executive secretary of the American Association of Nurserymen (AAN) in 1938 and was executive vice president of AAN from 1955 to 1961. From 1961 to 1966 he was director of the Horticultural Research Institute.

He was president of the American Horticultural Council in 1959, as a member of the visiting committee of Harvard University's Arnold Arboretum, and on the advisory council of the U.S. National Arboretum.

His many honors included the Massachusetts Horticultural Society's George Robert White Medal of Honor, the American Pomological Society's Marshall P. Wilder Medal, the National Plant Board's Distinguished Service Award, and induc-

tion into the AAN's Nurserymen's Hall of Fame in 1975.

"Dick White functioned both as a scientist and a public policy activist to ensure that the future needs of the green industries—particularly the nursery industry—were being given the proper priority," said AHS President H. Marc Cathey. "He continued his activities on the national as well as community level well into his mid-90s. In his case, it seems true that good deeds mean long life."

A LOOK INSIDE TREES

Is your son building a tree house? Did you hang a basket of fuchsias from a nail in an old oak tree? Is your yard a mecca for woodpeckers?

Each one of these delightful activities sets off a whirlwind of chemical activities inside the tree that could cause it to weaken and eventually die. How well it recovers from this tampering depends on whether or not the tree is a good "compartmentalizer," says Frank Santamour.

A research geneticist from the U.S. National Arboretum who has deliberately wounded hundreds of trees in his career, Santamour showed cross sections of good and bad compartmentalizers in a lecture at River Farm's "Salute to Trees" in October. But he noted that it's almost impossible to guess which category a given tree falls into until it's too late. "It has nothing to do with genus or species," he said. Young trees recover as well—or as badly—as old trees. We all know to avoid digging too close to a tree so we won't damage its roots, but some



trees can even successfully seal off damage after having large roots severed. Yet the practice of injecting growth retardants, intended to prevent the necessity of those unpleasant encounters between trees and utility company pruners, can shorten the life of a tree.

Tree owners can help trees by never flush cutting branches, an act Santamour called "a mortal sin." Leaving a stub helps ensure that the damage will be compartmentalized outside the trunk.



BRIDGET FLINT

Arborists from the Davey Tree Company demonstrated the techniques of professional tree pruning during "Salute to Trees" day at AHS's River Farm headquarters October 23. Davey employees trimmed a 200-year-old Osage orange tree, which is 45 feet high and spans 35 feet. Frank Santamour, U.S. National Arboretum research geneticist who lectured at the event, told his audience that such judicious pruning to remove damaged limbs and lessen wind resistance should mean that their children and grandchildren will be able to see the tree.

Most gardeners have heard that a properly pruned tree will callous over its wound. "You probably want it to callous for aesthetic reasons, but don't worry if it doesn't. What's important is what's happening inside."

There is one category of trees among those Santamour has looked at—he has not studied conifers—that compartmentalizes well across the board. These are the named cultivars—clones that are vegetatively propagated by grafting onto another tree's rootstock. "What is budding and grafting but severe wounding?" he noted. "A tree that survives grafting has to be strong."

Get down to basics.



Linda Askey edits the garden pages of Southern Accents and Southern Living magazines and gives us four presentations on different styles of garden making.



Steve Frowine travels the world looking for new plants as vice president of horticulture at White Flower Farm and tells us about the best new garden varieties.



Brent Heath owns Gloucester Virginia's Daffodil Mart and relies on his expertise as a third-generation daffodil breeder to introduce us to dozens of daffodils.



Julie Messervy wrote "The Contemplative Garden" and helps us understand how gardens serve the human need for quiet, solitude and introspection.

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REGIONAL HAPPENINGS

◆ **Jan. 28-30. St. Louis Flower Show.** Cervantes at America's Center, St. Louis, Missouri. Information: (314) 997-3407.

◆ **Feb. 4-6. Palm Beach Flower and Garden Show.** West Palm Beach, Florida. Information: (407) 835-3811.

◆ **Feb. 9-13. Northwest Flower and Garden Show.** Washington State Convention Center, Seattle, Washington. Information: (206) 455-2771.

◆ **Feb. 9-13. Southeastern Flower Show.** Ponce Square, Atlanta, Georgia. Information: (404) 876-5859.

◆ **Feb. 18-21. Maymont Flower and Garden Show.** Richmond Convention Center, Richmond, Virginia. Information: (804) 358-7166.

◆ **Feb. 19-27. Cleveland Flower Festival.** Cleveland Convention Center, Cleveland, Ohio. Information: (216) 891-3182.

◆ **Feb. 24-27. Rhode Island Spring Flower and Garden Show.** Rhode Island Convention Center, Providence, Rhode Island. Information: (401) 272-4441.

◆ **Feb. 26-Mar. 6. Southern Spring Show.** Charlotte Merchandise Mart, Charlotte, North Carolina. Information: (704) 376-6594.

◆ **Mar. 2-6. Garden Club of Toronto Flower Show.** Civic Garden Center, Toronto, Ontario. Information: (416) 239-6774.

◆ **Mar. 5-13. New England Spring Flower Show.** Bayside Exposition Center, Boston, Massachusetts. Information: (617) 536-9280.

◆ **Mar. 6-13. Philadelphia Flower Show.** Philadelphia Civic Center, Philadelphia, Pennsylvania. Information: (215) 625-8250.

◆ **Mar. 9-13. Washington Flower and Garden Show.** Washington Convention Center, Washington, D.C. Information: (703) 569-7141.

◆ **Mar. 10-13. Annual Lawn, Flower, and Garden Show.** Century II, Wichita, Kansas. Information: (316) 721-8740.

◆ **Mar. 10-13. Greater Rochester Flower and Garden Show.** Dome Arena, Rochester, New York. Information: (716) 225-8091.

◆ **Apr. 28-May 1. Cincinnati Flower Show.** Cincinnati, Ohio. Information: (513) 271-7055.

Mid-Atlantic

◆ **Feb. 10-12. Leaving No Stone Unturned VIII.** Conference. Holiday Inn Crown Plaza, Rockville, Maryland. Information: Sandra Lerner, (301) 495-4747.

◆ **Feb. 12-13. Association of Professional Landscape Designers Winter Meeting.** Held in conjunction with "Leaving No Stone Unturned VIII." Information: (301) 498-8780.

◆ **Mar. 12-13. A Russian Spring.** Flower and garden show benefiting the Hospital for Sick Children. Washington, D.C. Information: Mary Singer, (202) 363-6785.

North Central

◆ **Jan. 8-11. GrowerExpo '94.** Hyatt Regency O'Hare, Rosemont, Illinois. Information: (708) 208-9080.

◆ **Jan. 21-Mar. 6. Pre-Spring Floral Show.** Krohn Conservatory, Cincinnati, Ohio. Information: Jan Seidel, (513) 357-2605 or (513) 352-4080.

Northeast

◆ **Jan. 4, 11. Designing With Orchids and Other Tropicals.** Horticultural Society of New York, New York City. Information: Dana Robbin, (212) 757-0915.

◆ **Jan. 11-13. Eastern Regional Nurserymen's Association Annual Show.** Concord Resort, Kiamesha Lake, New York. Information: Larry Carville, (800) 376-2463 or (203) 872-2095.

◆ **January 12, 19. Growing Orchids in Your Home.** Two-day course. Massachusetts Horticultural Society, Boston, Massachusetts. Registration: (617) 536-9673.

◆ **Jan. 15-16. Designed Gardens as Plant Communities: Blending Horticulture Design and Ecology.** Symposium. Connecticut College, New London, Connecticut. Information: (215) 247-5777, ext. 156.

◆ **Jan 22. Berries, Blooms, and Buds.** Guided tour. Scott Arboretum, Swarthmore College, Swarthmore, Pennsylvania. Information: Laurie Mack, (215) 328-8025.

◆ **Jan. 22-Apr. 30. Welcome Spring.** Display. Longwood Gardens, Kennett Square,

Pennsylvania. Information: Pam Carter, (215) 388-6741, ext. 450 or 506.

◆ **Feb. 17. Groundcovers Tall and Small.** Tower Hill Botanic Garden, Boylston, Massachusetts. Information: Debi Hogan, (508) 869-6111.

◆ **Feb. 28. A Personal View of Longview Farm.** Longwood Gardens, Kennett Square, Pennsylvania. Information: Pam Carter, (215) 388-6741, ext. 450 or 506.

South Central

◆ **Jan. 12-18. Aquaculture Expo VII and Aquaculture '94.** New Orleans, Louisiana. Information: Carroll Trosclair, (800) 527-7631, Fax (504) 488-4135.

◆ **Feb. 20-22. International Society of Arboriculture Southern Conference.** New Orleans, Louisiana. Information: Dwayne Carter, (919) 789-4747.

Southeast

◆ **Jan. 21-22. National Tropical Foliage Short Course.** The Greater Fort Lauderdale/Broward County Convention Center, Fort Lauderdale, Florida. Information: (407) 345-8137, Fax (407) 351-2610.

◆ **Jan. 21-23. Ninth Annual Southern Gardening Symposium.** Callaway Gardens, Pine Mountain, Georgia. Information: Martha Miller, (706) 663-5153.

◆ **Jan. 26. Poinsettia Seminar.** Orlando, Florida. Sponsored by the Florida Nurserymen and Growers Association. Information: Joanne Chive, (407) 345-8137.

◆ **Feb. 5. Perennial Symposium.** Atlanta Botanical Garden, Atlanta, Georgia. Information: (404) 876-5859.

◆ **Feb. 5-9. American Society for Horticultural Science Southern Region Annual Meeting.** Nashville, Tennessee. Information: Paul L. Smeal, (703) 231-5609.

◆ **Feb. 10-13. The Antiques and Garden Show of Nashville.** Cheekwood: Tennessee Botanical Gardens and Museum of Art, Nashville, Tennessee. Information: (615) 352-1282, Fax (615) 353-2168.

◆ **Feb. 18-20. North Carolina Herb Association Annual Conference.** "Celebrate Herbs by the Sea." Wilmington, North Car-



olina. Information: NCHA c/o J. M. Davis, 2016 Fanning Bridge Road, Fletcher, North Carolina 28732.

◆ Feb. 24-27. **Cloister Garden Series.** Workshops, demonstrations, lectures. The Cloister, Sea Island, Georgia. Information: Irene Butler, (800) 732-4752.

◆ Feb. 25-27. **African Violet Society of America Annual Show.** "It's Raining Violets." Tampa, Florida. Information: Walter Spangler, (813) 345-8295.

◆ Feb. 26. **Garden Workshops.** Duke Homestead State Historic Sites, Durham, North Carolina. Information: (919) 477-5498.

Southwest

◆ Feb. 17-18. **High Desert Gardening**

and Landscaping Conference. University of Arizona, Sierra Vista, Arizona. Information: (602) 458-1104, ext. 141.

West Coast

◆ Jan. 15-16. **Bonsai Show.** "Winter Silhouettes." Sponsored by the Baiko-En Bonsai Kenkyukai Society. Los Angeles State and County Arboretum, Arcadia, California. Information: (818) 821-3222.

◆ Jan. 22-23. **Camellia Show and Sale.** South Coast Botanic Garden, Palos Verdes Peninsula, California. Information: (310) 544-6815.

◆ Feb. 12-13. **Pacific Camellia Society Flower Show.** Descanso Gardens, La Canada Flintridge, California. Information: (818) 952-4401.

◆ Feb. 24. **Traveling Through the Plant Kingdom: Horsetails and Club Mosses.** Lecture. Santa Barbara Botanic Garden, Santa Barbara, California. Information: (805) 682-4726.

◆ Feb. 25-27. **The 42nd Annual Pacific Orchid Exposition.** "Orchids Worldwide." Sponsored by the San Francisco Orchid Society. Fort Mason Center, Festival Pavilion, San Francisco, California. Information: (415) 664-2468.

◆ Feb. 26-27. **Plant Conservation and Landscape Design—An Ecological Approach.** Symposium cosponsored by the National Wildflower Research Center and Westmont College. Westmont College, Santa Barbara, California. Information: (805) 563-2521.

NATIONAL BONSAI MUSEUM EXPANDED

The U.S. National Arboretum has expanded its National Bonsai and Penjing Museum with two new facilities—the Kaneshiro Tropical Conservatory and Glasshouse, and the Yamaguchi North American Garden. The conservatory and garden were gifts from the National Bonsai Foundation, a nonprofit organization that raised \$300,000 for the new construction.

The tropical conservatory features an attached temperate greenhouse and is named for Haruo Kaneshiro, recognized as the founder of tropical bonsai in Hawaii. In further homage to Kaneshiro, who died in 1992, the Hawaiian bonsai community donated three exceptional specimens: a Christmas berry, a 30-inch ironwood tree, and a hybrid Chinese-Taiwanese banyan tree. The glasshouse will allow delicate tropical trees, which once spent the winter hibernating in storage greenhouses, to remain on display.

The Yamaguchi North American Garden commemorates the accomplishments of California nurseryman and bonsai artist George Yamaguchi. The garden puts the finishing touch on the museum's North American Pavilion and provides a transitional area between the American and Japanese pavilions.

The new conservatory and garden complete the American and Japanese sections of the National Bonsai and Penjing Museum. The museum was created in 1976 after the Japanese government presented the United States with a bicentennial gift of 53 bonsai trees. In 1982 the National Bonsai Foundation was established to help complete the museum through private fund-raising. Future expansions will include a Chinese Penjing Pavilion—*penjing* is the Chinese art of miniature tray gardening—and an International Pavilion, which will serve as an educational and cultural center for the museum.

NEW DIRECTOR FOR NATIONAL ARBORETUM

The directorship of the U.S. National Arboretum, vacant for two years, has been filled by Thomas S. Elias, formerly the head of the Rancho Santa Ana Botanic Garden in Claremont, California. Elias had held that position since 1984, and served concurrently as chairman of the botany department of the Claremont Graduate School. Before that, he

was assistant curator of the New York Botanical Garden's Cary Arboretum, from 1972 to 1984.

The last director of the National Arboretum was H. Marc Cathey, who left two years ago to become the national chair of florist and nursery crops review for the U.S. Department of Agriculture. He recently became President and chief executive officer of the American Horticultural Society.

BUDGET BLUES IN SANTA CRUZ

When its operating budget was threatened with extinction recently, the University of California-Santa Cruz (UCSC) Arboretum went public with an appeal for support. The state of California, as a result of its well-publicized fiscal woes, drastically constricted the flow of funds to its university system. At UCSC, which lacks either a botany or horticulture department, the arboretum was deemed expendable, and university officials informed the staff that its \$90,000 annual budget would be reduced by one-fifth per year for five years, after which the arboretum was expected to become self-sustaining.

"It was decided that the arboretum was not in the mainstream of the academic curriculum," says Phyllis Norris, past president of the Arboretum Associates, a volunteer group. But, she maintains, the arboretum is "a valuable interdisciplinary resource for the university." Among its regular visitors are art students, who come to practice botanical illustration, and young poets in search of inspiration. The arboretum is best known for its large collection of plants from the southern hemisphere—such as its South African proteas—and from the Mediterranean littoral.

Norris believes the gradual reduction is a two-edged sword. Although the cuts could eventually spell its doom, the UCSC Arboretum will undoubtedly be a healthier institution if it meets the challenge of self-sufficiency. "We're marshalling our forces for a first-rate funding campaign," Norris says. The arboretum staff hopes not only to maintain current operating expenses, but also to finance expansion. One of their primary goals is to establish an endowed chair of horticulture.

Donations may be sent to Arboretum Associates, University of California, Santa Cruz, CA 95064, or call (408) 427-1305.



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We at the American Horticultural Society are often asked to refer individuals to significant horticultural positions around the country. We are not in a position to offer full placement services to candidates or employers. However, as a service to our members—jobseekers and employers alike—we welcome the résumés and cover letters of individuals seeking job changes and employers seeking candidates. All responsibility for checking references and determining the appropriateness of both position and candidate rests with the individuals. AHS's participation in this activity is only to serve as a connecting point for members of the Society. Inquiries and informational materials should be sent to **HORTICULTURAL EMPLOYMENT**—AHS, Dept. 194, 7931 East Boulevard Dr., Alexandria, VA 22308-1300.

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I certify that the statements made by me above are correct and complete.
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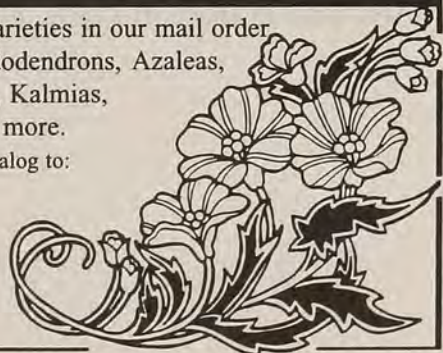
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IMPORT CHANGES OPPOSED

Representatives of the nursery industry testified last fall against changes to the Animal and Plant Health Inspection Service's (APHIS) Quarantine-37. The changes would allow five additional plant genera—*Alstroemeria*, *Ananas*, *Anthurium*, *Nidularium*, and *Rhododendron*—to be imported into the United States in growing media, and would expand the types of media in which these plants could be grown.

The American Association of Nurserymen (AAN) is opposing the proposal with a coalition of associations that includes the Professional Plant Growers' Association and the Society of American Florists. "APHIS admits that *Rhododendron*, in particular, has 'several pests associated with it that are not found in the United States and that are capable of becoming established here,'" AAN said. These pests include 10 insects that could enter greenhouses through openings two-tenths of a millimeter or larger. APHIS also found six diseases associated with *Rhododendron* that could cause substantial damage if introduced into this country.

Quarantine-37 now prohibits importation of most plants growing in media, because these media can hide pests and diseases. Japanese beetle, sweet potato whitefly, and gypsy moth are just a few of the imported pests that have caused grief for the industry and gardeners.

The changes are being sought by a coalition of countries—Belgium, Denmark, Israel, and the Netherlands. This is the first group of more than 60 genera for which they are asking greater leniency in importation rules. The period of public comment on the changes ended December 6.

Alstroemerias and anthuriums are already popular in this country's cut-flower trade. *Ananas* and *Nidularium* are members of the bromeliad family.

1994 ALL-AMERICA SELECTIONS

A lavender, a tomato, and a cucumber are this year's All-America Selections winners for the best new cultivars grown from seed.

Lavandula angustifolia 'Lady' is described as similar to 'Munstead', but unlike that cultivar blooms reliably from seed

the first year and produces more and more consistent flower spikes. It gets 10 inches tall and is hardy to USDA Zone 5.

'Big Beef' tomato is a beefsteak-type hybrid said to mature earlier than other beefsteaks, in about 73 days. An indeterminate grower, it will get five or six feet tall and will continue producing half-pound to one-pound tomatoes through frost. It is rated as highly disease resistant.

'Fanfare' cucumber also fared well on disease resistance. A slicing cucumber said to be less bitter than other cultivars, it is recommended for urban gardens and patios, since it can be grown in two or three feet of garden space or in a large container.

INTERN DIRECTORY AVAILABLE

The 1994 Internship Directory, published by the American Association of Botanical Gardens and Arboreta, is now available. It lists 25 pages of internships available in public gardens in 32 states, the District of Columbia, Canada, and Scotland. To order the directory, send \$5 to AABGA Internship Directory, 786 Church Road, Wayne, PA 19087.

NATIONAL SURVEY LAUNCHED

In November we reported that Rhode Island would be the 10th state in the nation to undertake a biological survey—an inventory of all its plants and animals. But now Interior Secretary Bruce Babbitt has created a National Biological Survey with the same goal for the entire country.

The huge undertaking will draw on resources of several Interior Department bureaus—primarily the U.S. Fish and Wildlife Service, the National Park Service, and the Bureau of Land Management—plus other federal bodies such as the National Academy of Sciences and the Smithsonian, state agencies, and private groups such as the Nature Conservancy's State Natural Heritage Programs.

The end goal is to identify and protect whole ecosystems, rather than individual species, ideally before they even become endangered, and before major conflicts arise as they have between the Pacific Northwest's logging industry and environmentalists who want to protect the spotted owl.



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