**Endangered Plants Update**

The Fish and Wildlife Service’s (FWS) list of endangered plants continues to grow. Four new plants have been added to the List of Endangered and Threatened Wildlife and Plants, and four other species have been proposed for listing.

*Butterfly. Vahí’s boxwood is a small tree or shrub that has been listed as Endangered. Found only in two small, isolated populations, it grows in semi-evergreen forests located on limestone in northern and northeastern Puerto Rico. The 40 existing individuals of this species are vulnerable to extinction from potential habitat modification or destruction due to limestone mining and urban development.

*Gardenia brighamii. Hawaiian gardenia or nau is a distinctive tree that reaches 20 to 30 feet in height. It has a broad canopy of shiny, dark green leaves and fragrant, white to cream-colored flowers resembling those of the Tahitian gardenia (*G. laitonisa*). Once found on five of the main Hawaiian Islands, today it occurs only on the islands of Lanai (about six plants), Molokai (two plants) and Oahu (one plant). It is believed to be completely extirpated from Hawaii and Maui, and has been listed as Endangered. Grazing and browsing by domestic and feral animals, and the invasion of exotic plants are believed to be responsible for this species’ decline. Also, Hawaiian gardenia’s native dryland forest habitat has been replaced by urban development, fields and pastures.

*Primula maguirei.* Maguire primrose, a small perennial herb with conspicuous lavender flowers, has been listed as Threatened. Although it is not in immediate danger of extinction, Maguire primrose is restricted in range and highly vulnerable to habitat modification. There are currently only nine known populations, one of which contains about 100 plants; the remainder each contain fewer than 30. These populations are found in Logan County, Utah, on land managed by the U.S. Forest Service. *P. maguirei* grows on damp, north-facing ledges and crevices and on overhanging rocks along canyon walls. Collecting and rock climbing threaten all nine populations, while some also are threatened by potential highway construction.

*Townsendia aprica.* Last chance townsendia is a one-inch-tall herbaceous perennial in the aster family that has been listed as Threatened. Its 12 remaining population sites are scattered over an area in central Utah about 30 miles across. Approximately 2,000 individuals are now known to exist; most of these are on land managed by the Bureau of Land Management. About 80 percent of the habitat under Federal ownership is under lease either for coal, oil or gas—a concern to biologists because *T. aprica* occurs on silty soils that can be disturbed by coal mining as well as by gas drilling. Other threats to the species’ survival include off-road vehicle use, cattle grazing and trampling, and highway construction.

In addition to these new listings, the FWS has proposed four species of plants to be considered for listing.

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**AHS 41st Annual Meeting**

San Francisco is the setting for the 41st Annual Meeting of the American Horticultural Society, August 13-17, 1986. The theme of the Meeting is “Back to Nature: Horticulture’s Legacy to the Future.” Educational sessions, and private and public garden tours will focus on plans conservation, edible landscaping, horticultural therapy and Oriental gardens. Experts in these different areas will speak at the educational sessions and lead the garden tours.

Meeting participants will have the opportunity to visit Golden Gate Park, founded in 1871. This 1,017-acre tract of land has been developed from a wasteland of sand dunes into a park that is internationally known as a botanical treasure. Included in this visit will be behind-the-scenes tours of special garden areas within the park, such as the 70-acre Strybing Arboretum and the Japanese Tea Garden, which was created in 1894 and is an authentic example of Japanese landscape artistry.

A trip to Filoli in Woodside, California is also planned. This beautiful estate with its lovely gardens was built in 1900 and was once known as the Roth Estate. It is now owned by the National Trust for Historic Preservation.

For more detailed information about the upcoming 41st Annual Meeting, please write the Educational Department, American Horticultural Society, PO Box 0105, Mount Vernon, VA 22121.
as Endangered. These include Il·
tanna corei (Peter's Mountain mal-
low), a single population of which
occurs on Peter's Mountain in West
Virginia; Mezoneuron kawaeiense, a
Hawaiian tree that exists in only
three small populations totalling
fewer than 50 plants; Cryptopsis flor-i-
dana (Florida golden aster), a peren-
nial herb threatened by urban develop-
ment, cattle grazing and heavy
off-road vehicle use; and Lindera melissifolia (the pond-berry), a small
deciduous shrub whose survival is
threatened by land clearing and
drainage activities.

Loch Lomond coyote-thistle (Eryng-
gium constancei), which is a peren-
nial herb in the parsley family, has
received temporary protection as an
Endangered species because of a
240-day emergency rule issued on
August 1, 1985 by the Fish and Wild-
life Service. The rule was issued in
response to an illegal dredge-and-fill
operation in the vernal lake in south-
ern Lake County, California, that is
the species' only known niche. Two
candidates for Federal listing under the
Endangered Species Act—Navar-
retia paticlora (low-flowered navar-
retia) and N. pleiantha (many-flow-
ered navarretia)—also were
imperiled by the operation.

Under Section 404 of the Federal
Water Pollution Control Act, the U.S.
Army Corps of Engineers (COE) is
responsible for issuing dredge and
fill permits. Section 7 of the En-
dangered Species Act requires all Fed-
eral agencies, including the COE, to
ensure that any actions it authorizes,
funds or carries out are not likely to
jeopardize the existence of a listed
species. Due to the emergency listing
of Eryngium constancei, a dredge-
and-fill permit cannot now be issued
by the COE without prior consulta-
tion with the FWS.

The Nature Conservancy is con-
sidering purchasing the vernal lake in
order to ensure protection of its un-
usual plant resources, and the Cali-
ifornia Department of Fish and Game
also is interested in the site. In the
meantime, a court order has
prompted the lake's owner to repair
the physical damage to the lake bed
causated by the operation. He also is
required to reseed the disturbed
plants, including the coyote-thistle.

—Endangered Species Technical
Bulletin, September 1985
**Student Award Announcement**

Do you know of an especially gifted student of the plant sciences living in the United States or Canada, or are you one yourself? Take note—the American Association of Botanical Gardens and Arboreta (AABGA) is offering a Student Recognition Award again this year to a qualified individual who has demonstrated a special interest in horticulture or botany. Any undergraduate or graduate student enrolled in an accredited college or university at a minimum of 50 percent of a full academic schedule, or any student presently enrolled full time in an internship or training program at a public garden, is eligible to apply. Applicants must be enrolled in a curriculum related to public gardens.

Students must be nominated by at least two AABGA members in good standing, and a letter from a person familiar with the student's academic and work experience also is required. Applicants must submit a paper describing research or an original project initiated by the student that would be of value to public gardens. The submitted paper must be in English, and no longer than 2,000 words long. It should be typewritten and double-spaced. Nominations and papers must be received no later than March 31, 1986.

The papers will be judged on originality, accuracy and completeness. They are expected to be neat, and to display proper form, grammar, spelling and punctuation. Applicants will be judged by the seriousness of their commitment to the field of public gardens.

The Student Recognition Award includes travel expenses for the AABGA Annual Meeting in Honolulu, Hawaii, June 25-28, 1986, plus registration fees, meals and accommodations. A citation will be presented at the Awards Luncheon, and the student will be expected to present his or her paper during the Annual Meeting.

For more information about covered expenses or to obtain a copy of last year's winning paper, write or call the AABGA, PO Box 206, Swarthmore, PA 19081, (215) 328-9145. Questions about the award and/or submitted papers should be addressed to Professor Woody Frey, Chair, AABGA Student Education Committee, Ornamental Horticulture Department, California Polytechnic State University, San Luis Obispo, CA 93407, (805) 546-2675.

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**AHS Awards Presented**

Mrs. Catherine H. Sweeney, former AHS Board Member, and AHS President Edward N. Dane present the Society's new Catherine H. Sweeney Award to Mrs. Janet Meakin Poor at the 40th Annual Meeting of the American Horticultural Society in Chicago. This new award recognizes extraordinary and dedicated efforts in the field of horticulture.

The Society's next Annual Meeting will be held in San Francisco, California, August 13-17, 1986. For more information, turn to page 2.
The American Horticultural Society

Kenya and East Africa
March 5-24, 1986
Led by Dr. Gilbert Daniels, past president of the AHS, this trip to one of the world’s most evocative countries includes visits to private gardens, arboreta, great tea estates, lakes, mountains, rain forests and moorlands throughout Kenya. The country offers an incredible spectrum of botanical wonders. Areas of great scenic beauty also provide ample opportunity to view the vast array of East Africa’s extraordinary wildlife.

China, Horticulture and History
April 9-29, 1986
Share with us an unforgettable three weeks studying the flora, art and history of China. Under the tutelage of Andrew Lauener, an authority on Chinese plants and recently retired from the Royal Botanic Garden of Edinburgh, and of Dr. William Wu, a Chinese scholar of art history and archaeology, born in Shanghai and now living in San Francisco, we will travel from Hong Kong to Kunming, Xian, Shanghai and Beijing. Richard Hutton, president of Conard-Pyle/Star Roses and current board member of the AHS will also accompany our group.

Dutch Treat, Holland at Tulip Time
April 27-May 11, 1986
This year's trip is a variation on last year's highly acclaimed tour following paths to the country's thriving horticultural centers. We spend the first week in Amsterdam visiting the gardens of Mien Ruys, the Palais Het Loo, Haarlem and more. The second week we cruise Holland's canals aboard the luxurious hotel barge Juliana. Our tour leader will be Mary Mattison van Schaik. Mrs. van Schaik, now a Vermonter, lived in Holland for 18 years and has owned a bulb importing business for 30 years. A member of the AHS, she is a popular lecturer and has been a Regional Director of the American Daffodil Society.

Scotland, Unspoiled and Unknown
May 25-June 8, 1986
Scotland is unquestionably romantic in legend and history and the landscape beautiful and unspoiled. We will visit private homes and gardens in the Western Highlands of Argyll, renowned for its rhododendrons and flowering shrubs. Traveling through remote and breathtaking scenery, we will tour the Isle of Gigha, Crae Woodland Gardens, Inverewe and Inverness. We will be entertained in private homes and castle gardens. In Edinburgh we have the opportunity to explore the city at our own pace and to be entertained by some of Scotland's most enthusiastic and privileged horticulturalists. We are again fortunate to have Everitt Miller, former director of Longwood Gardens, as our leader.

In Search of Gertrude Jekyll
July 24-August 7, 1986
Our search for the gardens of Gertrude Jekyll will take us to the English countryside to visit the many homes and gardens that speak to the genius of this outstanding gardener and her remarkable partnership with Sir Edwin Lutyens. Throughout our tour we will meet with English authors, landscape architects and horticulturalists who will share with us their knowledge and affection for the work of Gertrude Jekyll. Our tour leader, Mac Griswold, is a garden writer and historian presently working on a book for New York's Metropolitan Museum of Art about the garden images in their own collection.

These trips are sponsored by the American Horticultural Society.
For further information please contact:
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617-246-3575
Gardener's Dateline

JANUARY 17
Wholesale Nursery Growers of America, Winter Meeting
Hyatt Regency Hotel, Chicago. (Held in conjunction with Mid-American Trade Show.) Information: Dean Sanford, 4500 L. Lincoln Ave., Rolling Meadows, Ill. (312) 350-8160.

JANUARY 15, 22 & 29
"Gardening by Design" lecture series
Shoenberg Auditorium, Missouri Botanical Garden, 4344 Shaw Boulevard, St Louis, Missouri. Hours: 1 p.m and 8 p.m. daily. Admission: Adults with children $1; Senior citizens, free. Information: Jana Schmannor, (314) 577-5122.

JANUARY 28-29
1986 Horticulture Industries Show

JANUARY 30-FEBRUARY 1
Southwest Urban Forestry Conference

JANUARY 31
Bramble Grower's Association 1st Annual Meeting
Hershey Motor Inn and Convention Center, Hershey, Pennsylvania. Hours: 8 a.m. to 5 p.m. Registration: (Membership fee) $15; Consultants, industry representatives and county extension agents, $35; Growers, $35 plus $2 per acre of brambles (up to 7 acres). Information: Dr. Harry Swartz, Dept. of Horticulture, University of Maryland, College Park, MD 20742, (301) 454-4311.

JANUARY 31-FEBRUARY 4
Minnesota Home and Garden Show
Minneapolis Auditorium, Minneapolis, Minnesota. Hours: Friday, noon to 10 p.m.; Saturday, 10 a.m. to 10 p.m.; Sunday, 10 a.m. to 9 p.m.; Monday, 1 to 10 p.m.; Tuesday, 1 to 9 p.m. Admission: Adults, $4; Children 6 to 12, $1.50; Children under 6, free. Information: Trade Shows, Inc., 15235 Minnetonka Blvd., Minnetonka, MN 55345, (612) 933-3850.

JANUARY 31-FEBRUARY 9
27th Annual Colorado Home and Garden Show
Hours: Opening Friday, 7 to 10 p.m., Monday through Saturday, noon to 10 p.m.; Sundays, noon to 6 p.m. Admission: Adults, $4; Children 6 to 12, $1.50; Children under 6, free. Information: Jacqueline Haughton, General Manager, Industrial Exposition, Inc., P.O. Box 12289, Denver, CO 80212, (303) 458-5615.

FEBRUARY 1-2
Wildflower Symposium

FEBRUARY 5-7
Southern Farm Show

FEBRUARY 6-9
Jacksonville Home and Patio Show
Gicic Auditorium/Exhibition Hall Complex. Information: John Mullis, Managing Director, 2330 Oak St., Jacksonville, FL 32204, (904) 388-1038.

FEBRUARY 9-13
The National Arborist Association's 48th Annual Meeting

FEBRUARY 12-16
Midwest Flower and Garden Show
Omaha Civic Auditorium, 1804 Capitol Ave., Omaha, Nebraska. Hours: Wednes-
day and Thursday, 6 to 10 p.m.; Friday and Saturday, noon to 10 p.m.; Sunday, noon to 6 p.m. Admission: Adults, $3.25; Children under 12, $1.75. Information: Lutheran Medical Center, 515 South 26th St., Omaha, NE 68105. Flower Show Office: (402) 536-6999.

FEBRUARY 12-16
Iowa Home and Garden Show
Veterans Memorial Auditorium, Des Moines, Iowa. Hours: Wednesday, 4 to 10 p.m.; Thursday, noon to 10 p.m.; Friday and Saturday, noon to 10 p.m.; Sunday, noon to 8 p.m. Admission: Adults, $3.50; Children 6-12, $1; Children under 6, free. Information: Trade Shows, Inc., 15235 Minnetonka Blvd., Minnetonka, MN 55345, (612) 933-3850.

FEBRUARY 18-19
North American Heather Society's 1986 Annual Meeting
Napa Valley, California. Hosted by: Pacific Union College, Angwin, California. Information and Reservations: Dr. Lloyd Eighme, Pacific Union College, Box 54, Angwin, CA 94508.

FEBRUARY 18-23
25th Annual Flower, Lawn and Garden Show
Bartle Hall, Kansas City. Hours: 11 a.m. to 9 p.m. daily. Admission: Seniors, $3; Adults, $4; Children, $1.50. Information: George L. Eib, Superintendent, Board of Parks and Recreation, 5606 East 65th St., Kansas City, MO 64130.

FEBRUARY 21-23
EXPO '86: ARK-LA-TX Home and Garden Show
Exposition Hall, Shreveport, Louisiana. Information: Page Enterprises, Inc., Route #3, Box 12, Gravois Mills, MO 65037, (314) 370-2277.

FEBRUARY 20-23
"Heart of Georgia" Home and Garden Show

FEBRUARY 22-MARCH 2
The Southern Spring Show

FEBRUARY 22-MARCH 2
Central Ohio Home and Garden Show

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Calgary Home and Garden Show

FEBRUARY 27-28

FEBRUARY 28-MARCH 9
Cleveland Home and Flower Show
Hours: Opening Friday, 4 p.m. to 11 p.m.; Saturday and Sunday, 11 a.m. to 11 p.m.; Monday through Thursday, 11 a.m. to 10 p.m. Admission: $3.50 in advance, $5 at the door. Information: Cleveland Home and Garden Show, 118 S. Claire Avenue, NE, Suite 100, Mall Building, Cleveland, OH 44114, (216) 624-5415.

MARCH 1-2
Texas Gardener 2nd Annual Garden and Home Show
Waco Convention Center, Waco, Texas. Information: Lisa Renee Barnett, Executive Director, Texas Gardener's Garden and Home Show, P.O. Box 9005, Waco, TX 76714, (817) 772-1270.

MARCH 1-9
Cincinnati Home and Garden Show
Convention Center. Hours: Saturdays, noon to 9 p.m.; Sundays, noon to 6 p.m.; Weekdays, 10 a.m. to 10 p.m. Information: Hart Productions, Inc., 1172 W. Galbraith Rd., Suite 216, Cincinnati, OH 45231, (513) 522-7530.

MARCH 6-9
Metropolitan Louisville Home, Garden and Flower Show
Kentucky State Fairgrounds, East Wing and East Hall. Hours: Thursday and Friday, 6 to 11 p.m.; Saturday, 11 a.m. to 11 p.m.; Sunday, 10 a.m. to 9 p.m. Admission: Adults, $5; Children 6 to 12, $1; Children under 6, free. Information: Home Builders Association of Louisville, Home Building Center, 1800 Arthur Street at Bloom, Louisville, KY 40217, (502) 637-9579, Tony Short, Director, Spec. Prof.

MARCH 8-16
115th New England Spring Flower Show
Bayside Exposition Center, Boston. Hours: 10 a.m. to 10 p.m., Sundays; 10 a.m. to 8 p.m. Admission: Adults, $6; Senior citizens, $5; Children 6 to 12, $1; Advance tickets, $5. Information: Bonni Hamilton, (617) 262-8780.

MARCH 9-16
Philadelphia Flower Show
Philadelphia Civic Center, 34th and Civic Center Blvd. Hours: Sundays, 10 a.m. to 6 p.m.; Monday through Saturday, 10 a.m. to 9:30 p.m. Admission: Advance tickets, $6.25; Adults, $7; Children under 12, $3.50. Information: The Pennsylvania Horticultural Society, 325 Walnut St., Philadelphia, PA 19106, (215) 629-8250.

MARCH 12-16
Washington Flower and Garden Show
Washington Convention Center, 900 Ninth Street, NW, Washington, DC. Hours: Wednesday through Saturday, 10 a.m. to 7 p.m.; Sunday, 10 a.m. to 7 p.m. Information: TJS Productions, 7688-B Fullerton Rd., Springfield, VA 22155, (703) 569-7411.

MARCH 15-16
Spring Wildflower Symposium, Natives Preferred: Using Native Plants in American Gardens
Lecture program co-sponsored by the American Horticultural Society and the US National Arboretum. Reservations required; fee to be determined. Information: Education Department, Attn: Native Plant Symposium, American Horticultural Society, Box 1015, Mount Vernon, VA 22121, (703) 768-5700.

MARCH 15-23
The New York Flower Show: Garden Fantasies
The New York Passenger Ship Terminal, Pier 90, 55th Street and the West Side Highway, New York, New York. Hours: Opening Saturday and Sunday, 10 a.m. to 9 p.m.; Monday through Thursday, 10 a.m. to 7 p.m.; Friday through Sunday, 10 a.m. to 9 p.m. Admission: Adults, $6; Advance sale groups (10 or more), $5; Children under 12; $3. Information: Meryl Suben, Horticultural Society of New York, 128 W. 58th St., New York, NY 10019, (212) 777-7383.

MARCH 15-23
Indiana Flower and Patio Show
Indiana State Fairgrounds, West Pavilion Bldg., 1202 E. 35th St. Hours: Saturdays and Sunday, 11 a.m. to 10 p.m.; Sundays, 10 a.m. to 6 p.m.; Monday through Thursday, 11 a.m. to 9 p.m. Admission: Adults, $6; Children 6 to 12, $1; Children under 6, free; Adult advance tickets, $3. Information: Thelma and Ed Schoenberger, Co-producers, (317) 255-4151.

MARCH 15-23
Builders Home, Flower and Furniture Show
Cobo Hall, Detroit, Michigan. Information: Builders Association of Southeastern Michigan, 20755 Greenfield, #804, Southfield, MI 48075, (313) 569-0644.
HOW TO USE THIS CATALOGUE

For gardeners, January brings an itch for spring and thoughts of planting, pruning and spring flowers. Luckily for American Horticultural Society members, it also brings thoughts of the Society's Annual Seed Program and the many plants that can be grown from the seeds we distribute each year.

Take a few minutes to look through our 1986 Seed Program Catalogue. This year AHS members, as well as friends of the Society, have donated seed for a host of fascinating plants. The selections in this year's Catalogue range from common and much-loved marguerites, foxglove and columbine to rare species that are difficult to obtain from commercial sources. Ambitious gardeners will be pleased to see a special section devoted to bulbous and tuberous-rooted perennials. We also have special sections devoted to ornamental grasses as well as perennials and annuals that would be suitable for dried bouquets. Gardeners in the warmer portions of this country, and those lucky individuals who have greenhouses, will want to browse through our extensive list of tropical trees and shrubs. Finally, we have a wide range of perennials—both for the border and for the wildflower garden—as well as trees and shrubs and a few unusual vegetables. In short, there is something for everyone; perhaps you will find a few old favorites, a plant you have always wanted to try or a species you've never heard of before.

Once again, we are mailing your catalogue to you with your January News Edition. This allows us to cut the costs of administering the popular Seed Program. Printing, production and mailing costs rise every year, and including the Seed Program Catalogue with the January News Edition is a way for us to contain these ever-increasing expenses. Cost-saving measures such as these, combined with the continued generosity of members who participate in the Seed Program, will help us continue to improve this membership service.

Choosing Plants

Use the table of contents on this page to help you choose plants.

All of the seed distributed in the Society's Seed Program is donated to us by your fellow members and by seed companies, public gardens and plant societies from across the country. Although we have large quantities of many of the species listed here, in some cases, donors were only able to provide small quantities of seed.

Whenever possible, we will send you your first-choice selections. We request that you list alternate selections, however, so if the supply of any of your first choices is depleted, we can send you your alternate choices. Our volunteers who fill your order can make substitutions for you, but only you know what is best for your own garden.

Selections of which we have unusually small quantities are marked "limited supply."

How To Order

Once you have selected the seeds that you would like to grow, complete the order form on page 16.

We hope you will help us defray the costs of our Seed Program by enclosing a voluntary donation with your seed order. The cost of this program increases each year, and only the generosity of those who donate seed and those who help us with contributions allows us to continue the program. We ask for a minimum contribution of $1.00 if you request seven packets of seed, and $2.00 if you request 14. We are sure you will agree that the value of the seed you receive is much greater than a dollar. You can help us continue to expand and improve our Seed Program if you contribute more.

Please send your completed order form and contribution (cash or check made out to the American Horticultural Society) to Seeds 1986, American Horticultural Society, P.O. Box 261, Mount Vernon, VA 22121. (Because of the complexities of foreign exchange, foreign members need not include a contribution with their order.)

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

Please note that we cannot fill orders received after June 1.

Beginner's Seeds

If you are new at germinating plants from seed, you may want to consider some of the selections listed below. They germinate quickly and are all easy to grow.

Annuals. Use the general germination instructions for annuals for the following easy-to-germinate plants: 3, 4, 6, 8, 16-21, 26 and 90.

Perennials. Use the general germination instructions for perennials for the following easy-to-germinate plants: 23-25, 34, 37, 39, 40, 44, 70, 71, 89, 102 and 106.

Observations

Once again, we ask for your help in compiling information on the seed listed in this year's program. This information is valuable both to the Society and to those who have donated the seed we are offering.

Just keep a brief record of your experiences with the seed you try. You might include such information as the date you sowed your seed, the date the seed germinated, the number of successful germinations, and the date you transplanted or set out your seedlings. It would also help to include an evaluation of the seedlings' performance in the garden, including information on the plant's size selected and the susceptibility of the plants to disease and pests.

If you know any special handling tips or have extensive information on any of the very rare species in this year's list, pass them along to us. Your information may help improve a fellow member's results with one of your favorite plants. The information need not be detailed; just tell it like it is.

When you have completed your report, send it to Steve Davis in care of the Society, P.O. Box 0105, Mount Vernon, VA 22121.

Also, please help us better serve you by giving us your ideas and recommendations concerning the Seed Program. Your suggestions and comments will help us as we develop next year's program.

Seed Program '87

Plan now to donate seed to the Society's 1987 Seed Program! Although seed companies and botanical gardens donate seed to this exciting program every year, the majority of the items we list are donated by you, our members. Those of you who can only harvest and donate small quantities of seed need not despair; this year several of the selections we are offering were donated in small quantities by several individuals. These small donations, added together, provided us with enough seed to offer to program participants. For more information on the 1987 Seed Program, write to Steve Davis in care of the Society, P.O. Box 0105, Mount Vernon, VA 22121.

Contents

- General Germination Instructions 3
- Annuals 4
- Ornamental Grasses 5
- Plants For Dried Bouquets 5
- Biennials & Perennials 6
- Perennials For The Border 6
- Perennials For The Back Of The Border 7
- Irises 8
- Wildflowers For Sunny Meadows 9
- Shady Wildgarden Plants 9
- Bulbous & Tuberous-Rooted Plants 9
- House, Greenhouse, & Tropical Garden Plants 10
- Trees & Shrubs 12
- Shrub & Small Trees 12
- Maples 13
- Large Trees 13
- Vines 14
- Vegetables 14
- Suggested Reading 15
- U.S.D.A. Hardiness Zone Map 15
- Order Form 16
GENERAL GERMINATION INSTRUCTIONS

To germinate any of the seeds in this catalogue, use the following general planting instructions, and combine them with the specific sowing instructions given for annuals, perennials, and trees and shrubs on this page. Any exceptions or special requirements (for example, stratification or scarification requirements) are mentioned in the individual plant descriptions.

Outdoors, sow seed into a prepared seed bed, and keep the bed moist until the seeds have germinated and plants are growing vigorously. Seeds that are sown in the fall for germination the following spring should be watered in and protected for the winter.

Indoors, sow seed in flats or other containers that have an ample number of drainage holes. Plants identified as difficult to transplant can be seeded directly into peat pots or pellets that will, in turn, be planted directly into the ground, thus minimizing transplant shock.

Fill containers to within ¾ inch of the top with commercial potting mix, or develop your own medium. A soilless medium consisting of equal parts of vermiculite, milled sphagnum, and perlite is ideal.

Save this catalogue to identify the seeds you have selected!

Thoroughly moisten the medium and let it drain for two hours before sowing. To control damping-off, many gardeners and professional horticulturalists soak seed flats in fungicide before sowing. Use a fungicide that is recommended for this purpose. It is probably a good idea to wait 24 hours after treatment before sowing seed.

Sow the seed by pressing it into the moistened medium until it can be covered with soil to a depth equal to the diameter of the seed. Place very small seeds on the medium, and cover them lightly with milled sphagnum. Mist the surface after sowing, and label the flats or pots so you will be able to identify the seedlings when they appear.

Keep the medium moist. Water from the bottom by placing the flats or pots in a container of water until the moisture can be seen coming to the top of the medium. To provide uniform moisture and humidity, cover the containers with clear plastic bags. Do not let the plastic rest on the medium or touch the seedlings.

Place the container in strong, indirect light. Maintain an approximate temperature of 60° to 75°F.

Poke small holes in the plastic coverings as soon as the seedlings emerge. This will improve ventilation and prevent overheating. Transplant seedlings to individual containers only if there is a danger of overcrowding.

Transplanting is the second most crucial period in a plant's life after germination, so it is important to make this transition as gradually as possible. Harden off seedlings by slowly exposing them to brighter light and lower humidity after they have produced their second set of true leaves. Finally, a few days before you plan to transplant, move the plants outdoors for a few hours per day to accustom them to their new environment.

**Germination For Annuals**

Indoors, sow seed six to eight weeks before the plants are to be set outdoors, which should be done after all danger of frost is past. Transplanting two weeks after the frost date in your area is generally safe. Many annuals will not start growing until the ground warms up in the spring, so early transplanting will not necessarily give them a head start.

Recommended temperatures for the growing medium are 65° to 70°F. Seed should germinate within 20 days unless otherwise indicated.

Outdoors, annuals can be sown into a prepared seed bed after all danger of frost is past. All of the annuals listed can be sown according to these general instructions unless otherwise indicated. Exceptions to these rules, as well as specific sowing instructions that will improve results, are included in the individual plant descriptions.

**Germination For Perennials & Biennials**

Indoors, sow perennials four to six weeks before transplanting to the garden, which should be done after danger of frost is past. Although well-hardened perennial seedlings can withstand cool temperatures, transplanting about two weeks after the last frost date in your area is probably best.

Recommended temperatures for the growing medium are 65° to 70°F. Unless otherwise indicated, seed should germinate within 20 days. However, perennial seed may germinate slowly over a long period of time, even if a few individuals pop up almost immediately. Keep seeded flats moist for two to three months to avoid throwing away seed that is still viable.

Outdoors, sow seed in the spring two weeks after the last frost date, and in the summer or fall, up to two months before the first frost of autumn is expected.

All of the perennials listed can be sown according to these general instructions unless otherwise indicated. Treatments necessary to satisfy seed-dormancy factors, exceptions to these rules and more specific sowing instructions that will improve results are included in the individual plant descriptions.

**Germination For Trees & Shrubs**

Indoors, sow seed of trees and shrubs anytime. However, be sure adequate light, moisture and proper temperatures are provided. If sown in the spring, grow the plants through the summer in containers and set them out in the early fall; or sow them in containers and grow them under controlled conditions for a year or more before planting them out in the garden.

Outdoors, sow them in a prepared seed bed in the fall. Be sure to protect the seed from alternating periods of freezing and thawing with a layer of mulch. Keep rodents away with a layer of wire mesh.

All of the trees and shrubs listed can be sown according to these general instructions unless otherwise indicated. Exceptions to these rules are included in the individual plant descriptions.

**Stratification & Scarification**

**Cold stratification.** Place seeds that require a period of cold stratification in order to germinate in a plastic bag with a small amount of moistened sand, peat moss or sphagnum moss, or a mixture of half sand and half peat. Close the bag with a rubber band or a twist-tie, and place it in the refrigerator (about 40°F for the length of time specified in the individual plant descriptions). The mixture should be just damp, not soggy; otherwise, the seeds will rot. Sow the seeds according to instructions after the required period of time, or if they begin to germinate.

**Warm stratification.** Seeds that exhibit double dormancy must often be stratified at warm temperatures before they can be given a period of cold stratification. Place these seeds in a plastic bag, as prescribed for seeds to be cold-stratified, but keep them in a spot where they will be exposed to temperatures of 65° to 85°F.

**Scarification.** The seeds of many species are dormant because of hard seed coats that water cannot penetrate. Scarify these seeds by nicking the seed coat with a knife or filing it down with sandpaper or an emery board. Or, pour boiling water over the seeds and leave them to soak for 24 hours. Some seed requires both treatments.
ANNUALS

Annuals are among the easiest of garden plants to grow from seed. They also provide the gardener with a long season of bloom, and many are relatively carefree. This year, members and friends of the Society have donated seed of such old garden standbys as marigolds, impatiens and love-in-a-mist as well as a selection of rare species of Pelargonium. Use the information in the “Germination for Annuals” section on page 3 of this catalogue, and combine it with the specific sowing instructions (if any) that appear in the individual species descriptions.

1. Abelmoschus manihot (formerly Hibiscus manihot). Sunset hibiscus. Tender perennial from tropical Asia that is often grown as an annual. Grows to 6 feet or more in height and bears yellow, 6-inch flowers that are solitary or borne in racemes. Each flower lasts one day, but bloom is continuous from May to first frost. Full sun; rich, fertile soil. Keep well watered. Prefers cool climates. Cover seed; darkness required for germination.


4. Cleome hasslerana. Spider flower. Three- to 6-foot plant with large, 6- to 7-inch heads of airy, orchid-like blooms in shades of rose, pink, white or lavender. Flowers borne from midsummer to fall. Full sun. Will reseed at great rate. Remove seed pods prior to maturity to reduce next year’s weeding. Sow outdoors in spring or fall.

5. Crepis incana. Hawksbeard. Daisy family member from Greece. Flower heads are magenta-pink in color. Height to 6 feet. Full sun; light, loamy soil.


7. Erodium moschatum. Musk heronsbill, musk clover. Member of the geranium family with dissected, fern-like foliage and 6- to 13-flowered umbels of rose-purple flowers. Height 6 to 18 inches. Sow seed indoors 12 to 16 weeks before transplanting.

8. Gaillardia pulchella. Blanket flower. 2-foot plant with 2-inch flower heads consisting of yellow disk flowers and, generally, red ray flowers tipped with yellow.

9. Impatiens ‘Parfait’ Mix. Single- or double-flowered plants bearing blooms in a variety of colors. Flowers from early summer to first frost. Full to partial shade; rich, sandy, well-drained soil.


11. Mirabilis jalapa Cultivar Mix. Four-o’clock. One- to 2-foot, tuberous-rooted plant with funnel-shaped, yellow, red, pink, white or violet flowers that open in the late afternoon, summer to frost. Full sun. Roots can be lifted and stored over winter.


13. Nigella damascena. Love-in-a-mist. Annual with fern-like foliage and blue or lavender flowers with fuzzy green “veils” over them. To 13 inches in height. Interesting seed pods can be used in dried bouquets. Full sun; average soil with excellent drainage. Sow outdoors using general germination instructions for annuals; difficult to transplant.

14. Pelargonium species. Geranium. We have a small selection of 11 rare species of geraniums. Should you request this selection, and seed remains, we will send the seed of one species, our choice. We will try to honor preferences if indicated. 14a) P. alchemilloides. 14b) P. aftermanus. 14c) P. canariense. 14d) P. capitatum. 14e) P. carnosum. 14f) P. cordifolium. 14g) P. cucullatum. 14h) P. elongatum. 14i) P. multiflora. 14j) P. papilionaceum. 14k) P. tabulare. Sow seed indoors 12 to 16 weeks before planting outdoors. Limited supply.


17. *Tagetes ‘Naughty Marietta’*. Marigold. Dwarf, 1-foot plants with 2½-inch, golden-yellow flowers splashed maroon at the base of the petals. Blooms from midsummer to frost. For cultural information, see #16.

18. *Tithonia rotundifolia*. Mexican sunflower. Tall, 6-foot annual for the back of the border. Bears spectacular, 3-inch, daisy-like, scarlet-orange flowers from summer through fall. Drought resistant. Full sun; well-drained soil. Light may benefit germination; do not cover seed.

19. *Tithonia rotundifolia ‘Sundance’*. Mexican sunflower. Perfect, 3- to 4-foot annual for the back of the border. Bears spectacular, 3-inch, daisy-like, scarlet-orange flowers from summer through fall. Drought resistant. Full sun; well-drained soil. Light may benefit germination; do not cover seed.


### ORNAMENTAL GRASSES

These attractive plants are perfect for adding texture to a perennial garden, and they are also effective when used as accent plants. Their foliage and attractive seed heads catch the light and flutter in the breeze, providing hillside movement wherever they are planted. The seed heads are also perfect for dried bouquets.


22. *Coix lacryma-jobi*. Job’s tears. Annual ornamental grass with bluish-green white fruit that is sometimes mottled or striped. Height to 3 feet. Full sun; average soil. Requires staking. Cut stems can be hung in a cool, airy place for drying. Use general germination instructions for annuals, but soak seed in warm water for 24 hours before sowing.

23. *Pennisetum alopecuroides*. Chinese silvery grass. Beautiful perennial ornamental grass reaching 3½ feet in height. Bristly, spike-like inflorescence can be up to 1 foot in length. Foliage and spikes are rose- colored. Full sun; well-drained soil. For germination information, see #23. Zone 7.

24. *Pennisetum setaceum ‘Rubrum’*. Red fountain grass. Beautiful perennial ornamental grass reaching 3½ feet in height. Bristly, spike-like inflorescence can be up to 1 foot in length. Foliage and spikes are rose-colored. Full sun; well-drained soil. For germination information, see #23. Zone 7.


### PLANTS FOR DRIED BOUQUETS

The following plants have interesting flowers or seed structures that are not only wonderful in the mixed border or wildflower meadow but are also perfect for dried arrangements. The silvery seed pods of money plant, the white clouds of baby’s-breath are elegant, white flowers from June until frost. Plants to 3 feet. Sow outdoors in midsummer for flowering the following year, or sow indoors.


31. *Lunaria annua* (formerly *L. biennis*). Money plant, honesty. Biennial grown for its interesting, round, flat fruit, which is silvery and translucent once the seeds and valves (or coverings) have dropped. Flowers are purple or white, fragrant, and borne in clusters in spring and early summer. Plants to 3 feet. Sow outdoors in midsummer for flowering the following year, or sow indoors.

32. *Lunaria annua forma album*. White-flowered money plant. Biennial grown for its interesting, round, flat fruit, which is silvery and translucent once the seeds and valves (or coverings) have dropped. Flowers are white, fragrant, and borne in clusters in spring and early summer. Plants to 3 feet. Sow outdoors in midsummer for flowering the following year, or sow indoors.

Biennials and perennials are herbaceous plants that live in the garden for more than one growing season; biennials for two and perennials for three or more. Their longevity and relative low-maintenance are two reasons for their increasing popularity. These plants may not have the long blooming period of many annuals, but biennials and perennials can be selected to provide flowers in the garden from the beginning of spring until late in the fall, and they do not need to be replaced every year. For example, oxlip and cowslip primroses begin to bloom in May; coral bells, stachys; and delphinium bring color to the garden through the late spring and early summer; coreopsis, sneezeweed and white moth mulein extend the garden’s display into autumn.

There are biennials and perennials in all shapes and sizes. Some low-growing ones, such as sea pink, make good groundcovers. Tall plants are excellent for providing color in the back of the border; we have a whole section devoted to these. A few are wonderful for their columnar effect, among them are delphinium and foxglove. Other biennials and perennials for use in the mixed border can be found in other sections of this catalogue, including the two sections devoted to wildflowers.

Use the information in the “Germination for Perennials” section on page 3 unless otherwise indicated. More specific sowing instructions that will help improve your results are included in the individual plant descriptions.

Perennials For The Border

34. *Anthemis tinctoria* ‘Kelwayi’. Hardy marguerite. Short-lived, 3-foot perennial with very dissected foliage and summer-borne flowers. Flowers, which are daisy-like, are 1 1/2 inches across and have bright yellow ray florets. Will reseed. Full sun; average soil. Tolerates poor soils and dry conditions. Zone 3.

35. *Aquilegia* Cultivar Mix. A combination of columbine cultivars in blues, whites and reds. For cultural and germination instructions, see #106.


37. *Belamcanda chinensis*. Blackberry lily. Spectacular plant bearing late-summer clusters of 2-inch, lily-like flowers that are orange with red spots. Flowers are followed by seed pods that open to reveal ornamental, blackberry-like fruit. Iris-like foliage is 1 to 2 feet long. Full sun to light shade; well-drained soil. Zone 6.

38. *Calochortus luteus*. Yellow mariposa lily. 2-foot plant with erect, bell-shaped flowers. Petals are 2 inches long and deep yellow with red-brown lines or blotches. Light, porous soil with perfect drainage. Will not withstand alternate freezing and thawing; winter protection needed in cold climates. Bulbs can be lifted after blooming and replanted in the fall to prevent rotting during summer months. Mulch well. Zone 7. Limited supply.


40. *Chrysanthemum x superbum*. Shasta daisy. Attractive, 3-foot-tall plant that blooms from June through August. Flowers are white with yellow centers and may be single or double, daisy-like in form or resembling anemones. For cultural and germination instructions, see #39. Zone 4.

41. *Clematis integrifolia*. Solitary clematis. Erect, 3-foot species bearing solitary, nodding, bell-shaped flowers that are blue in color. For cultural and germination instructions, see #207. Zone 3.

42. *Clematis recta*. Ground clematis. Harebellaceous perennial species to 3 feet in height. Bears fragrant, white, 1-inch flowers in many-flowered clusters from June to September. For cultural and germination instructions, see #207. Zone 5.


44. *Dianthus barbatus*. Sweet William. Biennial, annual or short-lived perennial bearing flat, rounded clusters of red, white, pink, violet and bi-colored flowers. Full sun, light, well-drained soil that is slightly alkaline. Prefers cool, damp climate. Sow outdoors in spring for bloom the following year, or sow indoors and treat as an annual.

45. *Digitalis grandiflora*. Yellow foxglove. Perennial or biennial bearing 3-foot spikes of 2-inch, bell-shaped flowers that are yellowish marked with brown. Blooms late spring or early summer. For cultural and germination information, see #46. Zone 4.

46. *Digitalis purpurea* Cultivar Mix. Foxglove. Biennial bearing 1- to 6-foot spikes of 1- to 3-inch nodding, bell-shaped flowers that are white, pink and ivory. Blooms late spring, early summer. Partial shade; rich, loose, well-drained soil. Zone 5.


50. *Hosta ventricosa*. Blue plantain lily. Showy, dark green leaves and loose racemes of flowers borne well above the foliage.
Flowers are 2 inches long, bell-shaped and dark violet in color. Height to 3 feet. Zone 3.

51. Hosta Cultivar Mix. Mixture of hosta that are medium in size, and have green, blue or blue-green foliage. Flowers are lavender or purple. Zone 3.

52. Liriope muscari. Lilyturf. Evergreen. 1½-foot plant with grass-like foliage to 2 feet long and dense racemes of violet, grape-hyacinth-like flowers on spikes as high as the leaves. Blooms in September. Good ground-cover. Partial to full shade; well-drained soil. sow indoors or out after soaking seed for 24 hours in warm water. Germination takes 30 days. Zone 6.

53. Lychnis chalcedonica. Maltese cross. Erect, 2-foot plant with dark green leaves topped by clusters of 20 to 50 bright scarlet flowers. Flowers are cross-shaped. Blooms first year from seed if started early enough. Do not cover seed; light required for germination, which takes from 20 to 25 days. Zone 4.


56. Rosmarinus officinalis. Rosemary. Four-foot herb whose dried leaves are used in seasoning. Bears small, pale blue flowers in spring. Fresh flowers are used to distill an aromatic oil. Full sun; well-drained soil. sow indoors using general germination instructions for perennials. Germination takes 15 to 20 days. Zone 8.

57. Saponaria officinalis. Soapwort, bouncing Bet. Rhizomatous, 3-foot perennial bearing terminal clusters of white or pale pink flowers. Blooms throughout the summer, especially at night. Naturalized in the United States. Roots have been used medicinally; sap makes a lather. Can be invasive. Tolerant of poor soils. Zone 3.

58. Silene dioica. Red campion. Biennial or perennial with red and pink flowers borne in loose clusters. Blooms appear in summer and are excellent for cutting. Plants grow to 3 feet in height and are dioecious. Full sun to part shade. For germination instructions, see #53. Zone 5.

59. Sisyrinchium striatum. Blue-eyed grass. Tender perennial to 30 inches in height with grass-like foliage and dense spikes of small, yellowish flowers blooming in the summer. Native to Argentina and Chile. Self-sows. Full sun to light shade; well-drained soil. Germination takes 20 to 40 days. Zone 8.


62. Yucca baccata var. baccata. Banana yucca. Native of southwestern U.S. with short, woody stems and stiff, sword-shaped leaves that are coarse, curly-bowed on the margins. Flowers NOT and are borne in 2-foot long. AVAILABLE as AV 0 seeds in cool water for 24 hours before sowing. Sow in spring in sandy, well-drained mix, water lightly. Maintain 70°F to 85°F medium temperature. Probably hardy to Zone 8.


**Perennials For The Back Of The Border**


65. Alcea rosea Single-Flowered Mixture. Hollyhock. A mixture of single, pink-flowered plants. For cultural information, see #64. Zone 3.

66. Baptisia australis. Blue false indigo. Clover-like, blue-green leaves and indigo-blue flowers borne in late spring. Pea family; member; seed can be inoculated with nitrogen-fixing bacteria as are legumes grown as vegetables. Full sun. Outdoors, sow in very early spring or in late fall. Indoors, nick hard seed coats before sowing in early spring. Zone 3.


68. Delphinium ‘Giants’ Mix. Tall plant bearing purple, pink, blue or white flowers in early summer. Full sun; moist, rich, well-drained soil. Staking may be required. Keep well watered and fed. Remove faded flowers to prevent seed formation. Prefers cool climates. Zone 2.

69. Eryngium giganteum. Eryngo. Large, 6-foot plant bearing 4-inch heads of thistle-like flowers in blue and pale green. Full sun; light, dry soil. Seeds should be sown as soon as possible. Zone 5.


71. Helianthus annuus ‘Birton Beauty’. Sneezeweed. Cultivar differs from the species in that flowers are lemon yellow with purplish blotches. For cultural and germination information, see #70. Zone 3.

72. Helianthus annuus ‘Birton Beauty’. Coastal sneezeweed. Clump-forming perennial to 3 feet in height native to Oregon and California. Solitary, 2½-inch flowers are yellow with brownish-yellow, spherical centers. For cultural and germination information, see #70. Limited supply.

73. Hibiscus coccineus. Large, 6-foot perennial with 3- to 7-petaled, palmately compound leaves. Flowers are deep red and have four 3-inch-long petals that open into a flat whorl. Full sun to light shade; well-drained soil. Germination takes 15 to 30 days. Zone 7. Limited supply.

74. Hibiscus coccineus ‘Texas Star’. Annual or tender perennial. Bears large, red, 4-petaled flowers in mid- to late-summer. Re-seeds. Foliage is dissected into 3 or 5 toothed fingers. Full sun to light shade; well-drained, moist soil. Germination takes 15 to 30 days. Zone 9.

75. Inula helenium. Elecampane. Rough, 6-foot perennial whose root-long leaves are smooth above and velvety-tomentose beneath. Flower heads are 3 inches across and yellow in color. Blooms from July to September. Full sun, average, well-drained soil. Germination takes 20 to 40 days. Zone 4.

76. Lythrum salicaria. Purple loosestrife. A 6-foot perennial weed bearing terminal spikes of purple flowers from June to September. Stem leaves are willow-like and basal leaves are heart-shaped. May be invasive; grows in wet marshes, where it can choke out native species. Keep faded blooms
Save this catalogue to identify the seeds you have selected!

77. Malva alcea var. fastigiata. Mallow. Attractive, 3-foot perennial bearing many stems filled with soft pink, five-petaled blooms in July and August. Full sun to light shade; average, well-drained soil. Zone 3.

78. Malva moschata. Musk mallow. Three-foot plant with intricately cut foliage and very showy, 2-inch, white or rose-mauve flowers with notched petals. Blooms from June to September. May be invasive. For cultural and germination information, see #77. Zone 3.

79. Verbascum blattaria forma alboflorum. White moth mullein. Annual or biennial to 6 feet in height with gray-green foliage and white flowers. Columnar plant that grows from a basal rosette. Flowers are loosely clustered in a terminal spike and open from June to September. Full sun; average, slightly alkaline soil with excellent drainage. Maintain an 86°F medium temperature during germination. Zone 3. Limited supply.

80. Iris douglasiana. Douglas iris. Evergreen, Pacific Coast native with sword-shaped leaves to 1/4 feet. Flowers, which are red-purple and lilac to cream or white, are borne 2 or more per stem. For cultural and germination instructions, see #84. Difficult to grow outside of native habitat. Zone 8. Limited supply.

81. Iris missouriensis. Native iris bearing violet or lavender flowers with boldly-veined sepals on branched, 3-foot stems. For germination and cultural information, see #84. Zone 3.

82. Iris pseudacorus. Siberian iris. A blue-purple flowered plant with grass-like, 3/4-foot leaves. Full sun to light shade; prefers slightly acidic, moist soil. Follow general germination instructions for perennials, but indoors, sow following a 40- to 50-day period of cold stratification. Germination takes 20 to 35 days. Zone 3.

83. Iris setosa var. nana. Dwarf arctic iris. Alaskan and northeast Asian native with sword-shaped leaves less than 2 feet in height. Flowers have dark blue-purple standards, full sun, average, well-drained soil. If sowing indoors, provide a 2-week period of cold stratification before sowing. Germination is slow and irregular. Zone 2.

84. Iris sibirica. Siberian iris. A blue-purple flowered plant with grass-like, 3/4-foot leaves. Full sun to light shade; prefers slightly acidic, moist soil. Follow general germination instructions for perennials, but indoors, sow following a 40- to 50-day period of cold stratification. Germination takes 20 to 35 days. Zone 3.

85. Iris versicolor. Blue flag. Native Eastern iris bearing violet or lavender flowers with boldly-veined sepals on branched, 3-foot stems. For germination and cultural information, see #84. Zone 3.

86. Asclepias exaltata. Whorled milkweed. Summer-blooming perennial to 3 feet in height. White flowers, which are flushed with rose or purple, are borne on peduncles that are shorter than the leaves. A native of the eastern United States. Bonanza for butterflies. For best results, combine the information in "Germination for Perennials" on page 3 with the specific sowing instructions presented.

87. Asclepias tuberosa. Butterfly weed. Beautiful milkweed relative bearing clusters of orange flowers atop 2- to 3-foot plants. Will thrive in sandy, gravelly soil and in dry conditions because of deep root system. Difficult to transplant; sow indoors in individual pots following a 2-week period of cold stratification, which will speed germination. Germination takes from 21 to 28 days. Zone 3.

88. Asclepias verticillata. Horsetail or whorled milkweed. Summer-blooming perennial to 3 feet in height. Bears solitary or paired inflorescences of white flowers suffused with purple in the upper leaf axils. Linear leaves borne in whorls of 3 to 4. For cultural and germination instructions, see #87. Zone 3. Limited supply.


92. Eupatorium coelestinum. Mistflower, hardy ageratum. Bright blue to violet-flowered American native bearing dense corymbs of small flowers from July through October. Full sun to almost full shade; average soil. Sow seed indoors in moist, well-drained medium, lightly covering seed with soil. Maintain temperature of 70° to 75°F. Zone 7.


94. Lathyrus japonicus. Beach or seaside pea. Low-growing perennial bearing racemes of 6 to 10 purple flowers. Often found growing along the New England coast where it withstands summer sun, wind and salt spray. Difficult to propagate; sow seeds in moist sand where plants are to grow. Scarification treatment will probably improve germination. Zone 4. Limited supply.


98. Oenothera biennis. Evening primrose. One- to 6-foot biennial bearing spikes of 2-inch, yellow-gold flowers that open in early evening throughout the summer. Roots may be eaten as a vegetable, and the shoots in salad. May be invasive. Full sun; well-drained soil. Tolerates dry conditions. Zone 4.

100. Oenothera Species Mix. Evening primrose. Mixture of O. biennis and O. parviflora. For cultural and germination instructions, see #98.


102. Rudbeckia hirta. Black-eyed Susan. Biennial or short-lived perennial that can also be grown as an annual. Three-foot plant with 3-inch flower heads consisting of golden-yellow ray flowers surrounding a brown-purple “cone.” Flowers from late July to October. Zone 4.


106. Aquilegia canadensis. Wild columbine. Nodding, 1 1/2- to 4-inch flowers with red sepals, yellow petals and red spurs. Blue-green foliage. Outdoors, sow in early spring, about 2 weeks before last frost date. Indoors, provide a 3-week period of cold stratification, then germinate at temperatures of 70° to 75°F. Do not cover seed; light improves germination, which usually takes from 20 to 25 days. Zone 2-3.

107. Aquilegia formosa. Silky or western red columbine. Nodding, 1-inch flowers with red sepals, yellow petals and red spurs. Plants bloom from May to August. Stems to 3 feet tall. Native to woods and moist meadows from Alaska to Baja, California. For cultural and germination instructions, see #106. Zone 4. Limited supply.

108. Aquilegia vulgaris. European crowfoot, garden columbine. Violet-flowered plant with large, long-spurred flowers. Height to 2 feet. For germination instructions, see #106 for cultural information. Seed can also be soaked for 24 hours, sown indoors and kept at a temperature between 60° and 70°F. Zone 4.

109. Campanula americana. Tall bellflower. Erect, unbranched annual to 6 feet. Bears spikes of pale blue, 1-inch flowers. The 5-lobed flowers are flat, not bell-shaped. Blooms from June to August. Shade; moist soil. Sow indoors to 8 weeks before planting outside, and maintain a medium temperature of from 68° to 85°F. Will reseed. Germination takes from 10 to 14 days.

110. Dicentra formosa. Western bleeding-heart. Basal foliage is bluish-green, and nodding, rose-purple to white flowers are borne on 1 1/2-foot racemes. Blooming time is late spring. Part shade; fertile, light soil with excellent drainage. Must be kept moist during the growing season. Sow outdoors in late fall or early winter for germination the following spring, or sow indoors in moist medium and freeze for 6 weeks. Germinate at temperatures from 55° to 60°F. Germination takes 30 days or more. Zone 3.

111. Podophyllum peltatum. May-apple. Perennial to 2 feet tall. Bears nodding, white, 2-inch flowers beneath an umbrella-like whorl of leaves. The 2-inch, yellowish fruits are edible, but the stem and root are poisonous. Shade; rich, moist, acid soil. Sow in cold frame or open seed bed in early winter for germination in May. Zone 3.


113. Sanguinaria canadensis. Bloodroot. Low-growing native wildflower with red sap that Indians used as a dye and warpaint. Bears waxy, white flowers tinged with pink. Blooms are 1 1/2 inches across, and are borne on 8-inch scapes in early spring. foliage dies down in summer. Light shade; rich, moist, slightly acid soil. Zone 3. Limited supply.

114. Smilacina racemosa. False Solomon’s-seal, false spikenard. Arching perennial to 3 feet tall with finely hairy stems and large leaves. Small white flowers are borne in long terminal clusters and are followed by small whitish berries that turn red in fall. Partial shade; moist, slightly acid soil. Sow fresh seed outdoors in fall or sow outdoors in spring following a winter-long period of cold stratification. Plants will germinate second year after sowing, and will take several years to bloom from seed. Zone 3.

Shady Wildgarden Plants

Each of these plants is perfect for a wild shade garden or naturalized woodland setting, not to mention a shady perennial border or a shady spot in your yard. A few have interesting fruits, such as thimbleweed and may-apple. There are coarser-textured plants and fine-textured plants. Just about all are hardy in the northern U.S. A number of the irises we have available are also good for use in the shady garden. For best results, combine the information in “Germination for Perennials” on page 3 with the specific sowing instructions presented.

104. Anemone virginiana. Thimbleweed. Woodland plant to 1 1/2 feet tall with compound leaves in a basal clump. Bears 1/2-inch, white or greenish-white flowers, 1 to 3 per stem, in June to August. Fruits look like thimbles. Natural habitat is dry or rocky sites. Partial shade; well-drained soil. Sow seeds outdoors in late fall or early spring. Zone 4.


106. Aquilegia canadensis. Wild columbine. Nodding, 1 1/2- to 4-inch flowers with red sepals, yellow petals and red spurs. Blue-green foliage. Outdoors, sow in early spring, about 2 weeks before last frost date. Indoors, provide a 3-week period of cold stratification, then germinate at temperatures of 70° to 75°F. Do not cover seed; light improves germination, which usually takes from 20 to 25 days. Zone 2-3.

107. Aquilegia formosa. Silky or western red columbine. Nodding, 1-inch flowers with red sepals, yellow petals and red spurs. Plants bloom from May to August. Stems to 3 feet tall. Native to woods and moist meadows from Alaska to Baja, California. For cultural and germination instructions, see #106. Zone 4. Limited supply.

108. Aquilegia vulgaris. European crowfoot, garden columbine. Violet-flowered plant with large, long-spurred flowers. Height to 2 feet. See #106 for cultural information. Seed can also be soaked for 24 hours, sown indoors and kept at a temperature between 60° and 70°F. Zone 4.

109. Campanula americana. Tall bellflower. Erect, unbranched annual to 6 feet. Bears spikes of pale blue, 1-inch flowers. The 5-lobed flowers are flat, not bell-shaped. Blooms from June to August. Shade; moist soil. Sow indoors to 8 weeks before planting outside, and maintain a medium temperature of from 68° to 85°F. Will reseed. Germination takes from 10 to 14 days.

110. Dicentra formosa. Western bleeding-heart. Basal foliage is bluish-green, and nodding, rose-purple to white flowers are borne on 1 1/2-foot racemes. Blooming time is late spring. Part shade; fertile, light soil with excellent drainage. Must be kept moist during the growing season. Sow outdoors in late fall or early winter for germination the following spring, or sow indoors in moist medium and freeze for 6 weeks. Germinate at temperatures from 55° to 60°F. Germination takes 30 days or more. Zone 3.

111. Podophyllum peltatum. May-apple. Perennial to 2 feet tall. Bears nodding, white, 2-inch flowers beneath an umbrella-like whorl of leaves. The 2-inch, yellowish fruits are edible, but the stem and root are poisonous. Shade; rich, moist, acid soil. Sow in cold frame or open seed bed in early winter for germination in May. Zone 3.

Bulbous & Tuberous-Rooted Plants

We have received seed of several bulbous and tuberous-rooted plants this year. Although these plants generally require a little more patience to grow from seed, they are certainly worth the time and trouble. There are old garden favorites such as dahlias, gladiolus and several species of lilies, as well as some more unusual species such as the gloriosa lily, calla lilies and soap plant. Please note that many of these plants must be lifted and stored at the end of the growing season in order to survive the winter in colder areas. For best results, use the general germination instructions for annuals for the plants that are hardy in Zones 9 and 10, and the instructions for perennials for the other species. Combine this information, which appears on page 3, with the specific information presented below.

115. Agapanthus africanus. Lily-of-the-Nile. Tender, tuberous-rooted perennial with evergreen, strap-like leaves that reach 1 1/2 feet or more in length. Bears 12- to 30-flowered umbels of fragrant, 1-inch-long, violet-blue flowers. Excellent tub plant for summer patio. Will bloom for several years without replanting. Full sun. Water and fertilize heavily during the growing season. Plant may go dormant in winter, dry off gradually and store in cool, dry location. Sow indoors maintaining medium temperature of 75°F and cover seeds lightly. Plants will flower 3 to 5 years from sowing. Zone 9.
116. Allium aflatunense. Bulbous perennial bearing globe-like, densely flowered umbels. Light violet flowers with yellow anthers are borne on a 2'/2- to 5-foot scape. Excellent for drying or use as cut flowers. Full sun; well-drained soil. Sow outdoors in fall or sow indoors following a 1-month period of cold stratification. Will take several years to bloom from seed. Zone 5.


118. Chasmanthir floribunda. Member of the Iris family having stiff, bright green leaves to 2 feet long and 2 inches wide. Flowering stems are to 4 feet in height. Flowers are 2 inches long, orange-red in color and are borne in densely flowered terminal spikes or panicles. For cultural and germination instructions, see #122. Zone 9.

119. Chlorogalum pomeridianum. Soapplant or wild potato. Bulbous perennial with long, strap-like leaves and terminal panicles of white, purple-veined flowers that open in the afternoon. Lilypad family native to western North America. Attracts bees. Bulbs yield a latex that can be used as a soap substitute. Full sun; semi-dry, loamy soil. Germination probably takes 2 months or more. Plants will take several years to bloom from seed. Zone 9.

120. Dahlia cultivar Mix. Tender, tuberous-rooted perennial. This selection includes a wide range of flower types and colors, including single, double, semidouble, and informal. All colors are AVAILABLE 3 to 6 feet in height and 4 to 6 feet in width. For indoor planting: full sun; semi-dry, loamy soil. Germination probably takes 2 months or more. Plants will take several years to bloom from seed. Zone 9.


122. Gladiolus Cultivar Mix. Large-flowered hybrids to 2 feet or more in height. Flowers is sword-shaped. The 6-inch flowers come in a range of colors. Full sun; deep, well-drained, slightly acid soil. Sow indoors in late winter. Germination takes 20 to 40 days. Corms will form first year; plant will flower in 2 or 3 years. Hardy to Zone 9. Corms should be lifted before frost and stored over winter.

123. Gladiolus Cultivar Mix. Small-flowered hybrids are up to 2 feet tall. Flowers is sword-shaped. The 2'/2- to 3-inch flowers come in a range of colors. For cultural and germination instructions, see #122.

124. Gladiolus tristis. Corn flag. Two-foot plant with grass-like foliage and fragrant yellow flowers that open at night. Full sun. Sow indoors in late winter. Germination takes 20 to 40 days. Corms will form first year; plant will flower in 2 or 3 years. Hardy to Zone 7b (to 5°F). In northern regions corms probably can be lifted and stored in winter.

125. Gloriosa sp. Gloriosa lily. Tuberosous, vining plant that grows to 8 feet in length. Reflexed, red, yellow and purple variegated flowers are lily-like. Blooms in summer outdoors and in winter in the greenhouse. For outdoor plants: full sun; very rich, well-drained soil; trellis or other support needed. Dig up rhizomes before frost, store in a 3-month dormant period. Sow seeds on surface of medium and maintain medium temperature of between 65° and 75°F. Do not cover seed; light required for germination, which takes 3 to 5 weeks. Zone 9.

126. Lilium canadense. Canada lily, meadow lily. Five-foot, summer-blooming perennial bearing 1 to 20 flowers in 1 to 4 umbels. Nodding flowers are 3 inches long, 3 inches across, and orange-yellow to red with purple-brown spots. Full sun; tolerates dry conditions. Sow outdoors following a 45-day period of cold stratification. Germination takes 20 to 40 days, and plants will take several years to bloom from seed. Zone 4.

127. Lilium Cultivar and Species Mix. A variety of lilies. Full sun; fertile, slightly acid soil that is evenly moist but well-drained. For germination information, see #126.

128. Lilium superbum. Turk’s-cap lily. Beautiful, 8-foot perennial bearing late-summer stalks with up to 40 flowers. Flowers are 4 inches across and orange spotted with maroon. Petals are strongly reflexed and anthers are orange-red. Leaves are whorled. May require staking. Full sun; fertile, slightly acid soil with perfect drainage. For germination information, see #126. Zone 4.

129. Zantedeschia ‘Green Goddess’. Calla lily. Stemless plant with large, glossy, arrow-shaped leaves that arise from thick rhizomes. Six-inch flower spathe is greenish-yellow and is borne on a stalk about 2'/2 feet in height. Indoors, keep at 50°F nights until roots develop, then raise temperature to 60° to 65°F, and keep moist once active growth begins. Outdoors, plant in full sun to light shade in very rich, well-drained, mulched soil. Dig up rhizomes before frost, store in cool, dry place until spring. Requires at least 3 months of dormancy. Sow seeds in late winter. Germination takes 3 to 5 weeks. Zone 9.


131. Adenium obesum. Desert rose. Slow-growing shrub or small tree to 15 feet in height. Succulent, fleshy trunks with 6-inch leaves clustered at the ends of the branches. Deep pink flowers are borne in flat-topped clusters. Milky sap is poisonous. Likes hot, dry conditions. Native to tropical Africa. May be difficult to germinate. Zone 10.

132. Annona muricata. Sourpuss, prickly custard apple. Small evergreen tree to 20 feet in height. Bears solitary, yellow flowers that are 1 inch long or more. The dark green, spiny, 8-inch fruit has white flesh and is edible. Used for sherbets and refreshing drinks. Very tender species native to tropical America. Hardy only in warmest parts of Zone 10. Limited supply.

133. Annona squamosa. Sugar or custard apple; sweetsop. Small evergreen tree to 20 feet in height. Bears 1-inch, greenish-yellow flowers. The yellowish-green, heart-shaped fruit is 3'/2 inches across. Widely cultivated in the lowland tropics and subtropical Florida. The most delicious of the annonas. Also a tropical American native, hardy only in Zone 10b. Limited supply.

HOUSE, GREENHOUSE & TROPICAL GARDEN PLANTS

All of the plants in this section are suitable for tropical gardens. The smaller species can be grown indoors or in greenhouses in areas where they are not hardy. As the plants in this section illustrate, tropics are a fascinating, diverse group of species. We have enormous trees, small flowering pot plants, vines, shrubs with interesting or edible fruits and more. Many of the plants listed are tender perennials, and numbers 62, 63, and 74, are also tender perennials that can be grown out-of-doors in Zones 9 and 10. Follow the "Germination for Annuals" instructions unless otherwise indicated.

135. Asparagus setaceus 'Nanus'. Dwarf asparagus fern. Low-growing cultivar with lacy, ferny foliage that is rich green in color. Light shade; light, fertile, slightly acid soil. Water and feed heavily in summer. Sow seed indoors after soaking in warm water for 24 hours. Germination takes 30 days. Zone 8.

136. Caesalpinia gilliesii. Bird-of-paradise shrub. Shrub or small tree bearing yellow flowers with bright red stamens. Fruits are up to 4 inches long. Soak seed in warm water for 24 hours before sowing. May be slow to germinate. Zone 8. Limited supply.

137. Cananga odorata. Ilang-ilang. Fast-growing evergreen tree native to tropical Asia. Bears 8-inch leaves and can be 80 feet tall in its native habitat. (Usually no more than 15 feet tall in tropical U.S.) Drooping, yellowish-green flowers are very fragrant. Oil is distilled from the flowers for perfume. Sow in moist, light soil mix. Sprinkle seeds and press lightly on surface. Cover with perlite, water lightly and cover with glass or plastic until seeds germinate. Maintain medium temperature of 75° to 85°F. Zone 10.

138. Cassia didymobotrya. Shower tree. Ten-fooot shrub with foot-long leaves divided into 8 to 16 pairs of leaflets. A pea family member that bears erect racemes of 1/3-inch flowers. Full sun; warm, humid conditions. A native of tropical Africa, it is naturalized in tropical America. Sow indoors in warm, moist medium. Do not allow to dry out. Germination is variable. 20 to 60 days. Zone 10b. Limited supply.

139. Chrysalidocarpus cabadae. Palm. Tropical palm producing a cluster of bamboo-like stems, 5 inches in diameter, that reach 30 feet or more. Leaves are pinnate. Leaflets are borne in a single plane and are regularly arranged. Bears small, bright red fruits. Sow on surface of warm, moist loam and cover lightly with perlite. Maintain a medium temperature of 80°F. Germination takes 60 days or more. Zone 10.

Save this catalogue to identify the seeds you have selected!

140. Clusia rosea. Balsam apple. Epiphytic, tropical tree to 40 feet in height with large, thick, evergreen leaves. Pink and white flowers are 2 inches across. Bears greenish-white, inedible, apple-sized fruits that are used in arrangements. Seeds contain a sticky resin used in caulking boats. Resists salt spray. For germination instructions, see #137. Zone 10.

141. Coffea arabica. Common coffee. Arabian coffee shrub. Plant to 15 feet tall with glossy, dark, evergreen leaves and clusters of fragrant, pure white, star-shaped flowers. Brilliant red, fleshy fruits each contain 2 seeds, which are coffee “beans.” Pulp must be removed before seeds can be used for making coffee or be planted. Zone 10.

142. Diapetes venusta. African iris. Tender perennial with fan-like leaves and attractive flowers borne on 2-foot stems. Flowers are 2 1/2 inches across. White outer petals shaped with yellow or brown spots. Crests of the styles are marked with blue. Humus-rich soil; allow to dry between waterings. Germination takes 20 to 40 days. Zone 10. Limited supply.

143. Erythrina americana. Mexican coral. Deciduous, spiny tree with red to light brown flowers in short, dense racemes. Flowers are hairy and seeds are red. Full sun; average, well-drained soil. Sow seeds indoors after soaking in warm water for 24 hours. Maintain a medium temperature of 70° to 75°F. Zone 10. Limited supply.

144. Guaiacum officinale. Lignum-vitae. Tropical, evergreen tree to 30 feet in height. Bears few-to-many-flowered clusters of blue to white blossoms. Very dense wood is used to make bowling balls, ball bearings, and other items that require very tough wood. Resistant to salt spray. Native to Panama, South America and the West Indies. For germination instructions, see #137. Zone 10.


146. Portlandia grandiflora. Slow-growing, evergreen shrub to 10 feet in height with large, shiny, dark green leaves. Bears large, white, 8-inch-long flowers that are shaped much like an Easter lily. For germination instructions, see #137. Subtropical. Zone 10.


148. Solanum macranthum. Potato tree. Spiny, tropical shrub or small tree bearing bright blue, star-shaped flowers. The flowers fade to white as they age. The leaves are about 1 foot long and are toothed or lobed. For cultural and germination instructions, see #137. May be slow to germinate. Zone 10b.

149. Solanum melongena. Egg tree. Tender perennial that is grown as an annual or a pot plant. Bears violet-purple flowers and inedible white fruits that resemble eggs. Likes heat and humidity. Allow soil to dry slightly between waterings. Requires a long growing season for fruiting. Sow indoors using general germination instructions for annuals. Germination takes 15 to 20 days. Zone 10.


151. Stephanotis floribunda. Stephanotis, Madagascar jasmine. Twining, woody vine to 15 feet or more in length. Evergreen leaves are thick and shiny. Fragrant, white, waxy, tubular, star-shaped flowers are borne in clusters of 5 to 6. Blooms are long-lasting and appear from April to October. Greenhouse tub plant. Prefers night temperatures of 65°F. Full sun; evenly moist soil. May be grown outside in the summer in partial shade. Zone 10. Limited supply.

152. Tabebuia chrysotricha. Golden trumpet tree. Evergreen, tropical tree to 50 feet in height. Flowers are golden-yellow, 2 1/2 inches long and are borne in clusters up to 20 inches long in April and May. Densely hairy fruit is up to 8 inches in length. Well-drained soil; drought tolerant. Requires staking. Zone 10.


154. Wilkesia gymnoxiphium. 'Iliau. Hawaiian species that is found only on the island of Kauai. Daisy family member that reaches 8 or 9 feet in height and bears terminal inflorescences. Flower heads are yellow-green and 2 inches across. Full sun; well-drained soil. Sow seeds in a mixture of two parts perlite and one part peat after soaking in warm water for 48 hours. Keep moist. Germination varies. Zone 10.

AHS SEED PROGRAM CATALOGUE • 11
Shrubs & Small Trees


157. *Callicarpa dichotoma*. Beautyberry. Four-foot shrub bearing pink flowers in summer and striking, dense clusters of blue-violet fruit in late summer and fall. Full sun to partial shade; average, well-drained soil. Sow outdoors in full or indoors following a 70-day period of cold stratification. Germination takes 1 to 2 months. Zone 5.

158. *Cephalanthus occidentalis*. Buttonbush. Small, twenty-foot tree or large shrub with glossy, 6-inch leaves and creamy, 1-inch flowers borne in showy heads. Blooms in summer and early fall. Found along streams, likes moist conditions. Sow in spring or summer, indoors or out. Zone 4. Limited supply.

159. *Cercis chinensis*. Chinese redbud. Deciduous shrub or small tree. Heart-shaped leaves with transparent margins and showy, rose-pink flowers that appear earlier in the spring than other *Cercis* species. For best germination results, use a scarification treatment for the hard seed coats, followed by a 3-month period of cold stratification. Or sow outdoors in the fall. Zone 8.


162. *Cotula arborescens*. Bladder senna. Vigorous shrub to 15 feet tall bearing yellow flowers with red markings in May. Flowers are followed by 3-inch long, inflated fruits. Grows in almost any soil. Pea family member native to northern Africa and southern Europe. Zone 5.

163. *Euonymus alata*. Winged spindle tree, burning bush. Deciduous, 8-foot shrub or small tree. Branches have corky wings. Yellowish flowers, reddish to purplish fruit and spectacular, red fall foliage color. Indoors, sow in spring following a 3- to 4-month period of cold stratification. Or in early fall for germination the following spring. Zone 4.


165. *Fouquieria splendens*. Ocotillo. Spiny shrub to 20 feet in height native to the desert regions of the southwestern U.S. Sometimes used in hedge plantings, it bears tubular, red, 1-inch flowers in 10-inch-long panicles in spring and summer. Probably hardy to Zone 7.

166. *Franklinia alatamaha*. Franklin tree. Native American, 20- to 30-foot tree that is extinct in the wild, now known only in cultivation. Shiny, 6-inch, leathery leaves and bright orange fall color. Two- to 3-inch, cup-shaped, white flowers appear in August and September. Full sun to light shade; rich, moist, acid soil. Store seed in refrigerator until planting. Outdoors, sow in late fall, early winter. Indoors, sow following a 1-month period of cold stratification. Germination takes 25 to 30 days at temperatures of 70° to 75°F. Zone 6.


169. *Ilex verticillata*. Winterberry. Deciduous shrub or small tree to 15 feet in height. Male plants bear flowers in clusters; females bear solitary flowers. Plants of both sexes needed for fruiting. Fruits are red, sometimes yellow, about ½ inch in diameter. Fruits are edible, sometimes tart. Well-drained soil. Sow indoors following a 2-month period of warm stratification followed by a 2-month period of cold stratification. Very slow to germinate. Zone 4. Limited supply.

170. *Myrica pensylvanica*. Bayberry. Deciduous to semievergreen shrub with aromatic foliage. Gray, waxy berries, which appear on female plants only, are ¼ inch in diameter and are used in making bayberry candles. Tolerant of salt and infertile soil. Sow outdoors in the fall, or sow indoors after a 3-month period of cold stratification. Germination takes 5 months. Zone 4.


173. *Rosa villosa*. Apple rose. Wild rose native to Europe and Iran. Reaches 6 feet in height, and bears single, 2-inch, pink-to-red flowers. Valued for its red, ½-inch diameter fruit, which are edible. Full sun; rich, fertile, well-drained soil. Outdoors, sow in late fall or early spring for late spring germination. Or sow indoors following a 3-month period of cold stratification. Maintains 75°F during germination, which takes 3 to 4 weeks. Zone 6.
Large Trees


184. Betula lenta. Sweet birch. Deciduous tree to 75 feet in height. Bark is dark red to almost black, turning to gray on old trees. Young twigs and bark are the main source of oil of wintergreen. Full sun to partial shade; moist, sandy soil. Sow in sand following 40- to 70-day period of cold stratification. Cover seed lightly. Germination takes 30 days. Zone 3.

185. Betula populifolia. Gray birch. Small, graceful. 30-foot tree useful for dry, poor soils or in boggy sites. Chalky bark and 3-inch, glossy-green leaves. Sow outdoors in late summer or early fall up to 2 months before first frost. Or, sow indoors in spring after a 1- to 2-month period of cold stratification. Cover seed lightly or not at all. Germination inhibitor destroyed by stratification or exposure to light. Germination takes 30 to 40 days. Zone 4.

186. Cercidiphyllum japonicum. Katsura tree. Beautiful, upright, branching tree to 100 feet in height. Very fast growing. New leaves are reddish-purple and change to bluish-green in summer. Fall color is yellow to yellow-red. Male and female trees necessary for production of fruit, which is bluish in color. Full sun; rich, moist, well-drained, acid soil. Zone 5. Limited supply.

187. Cercis canadensis. Redbud. Deciduous tree to 40 feet. Heart-shaped, light green leaves and abundant, showy, pea-like, pinkish-purple flowers borne in spring before the leaves appear. Sow outdoors in fall or indoors after a 2- to 3-month period of cold stratification. Use medium with high content of coarse sand. Germination takes 30 to 90 days. Zone 4.

188. Cercis canadensis ‘Rosea’. Redbud. Deciduous tree to 40 feet. Heart-shaped, light green leaves and abundant, showy, pea-like, bright magenta flowers borne in spring before the leaves appear. Cultivar is less purple and more pink than the species. For germination information, see #187. Zone 4.

189. Cladrastis lutea. Yellowwood. Deciduous, 50-foot tree bearing 10- to 12-inch panicles of fragrant flowers in early summer. Bark is beech-like. Full sun to partial shade; average soil with good drainage. Sow outdoors in fall. Or, sow indoors following a scarification treatment for hard seed coat and a 3-month period of cold stratification. (A scarification treatment of both nicking the seed coat and soaking in nearly boiling water may help break dormancy.) Day temperatures of 86°F and night temperatures of 68°F are recommended. Germination takes 1 to 2 months. Zone 5.

190. Cornus florida. Flowering dogwood. Beautiful small tree to 30 feet in height. Bears showy white flowers in spring and has red fruit and red autumn color in fall. Sow indoors following a 4-month period of cold stratification. Can be sown outdoors in fall, and in this case, seed may benefit from a summer-long period of cold stratification. Germination may take several months, or the seed may lie dormant for a year. Zone 5.

191. Crataegus phaenopyrum. Washington hawthorn. Beautiful, 25-foot tree with white, 1/2-inch flowers and bright red, 1/2-inch fruit. Sow in fall for germination the following spring or in the spring following a 3-month period of cold stratification. Zone 5.

192. Diospyros virginiana. Common persimmon. Small, deciduous tree to 40 feet in height. Handsome foliage and excellent-tasting, edible fruit. Harvest fruit when yellow-orange and wrinkled. Unripe fruit is very astringent. Full sun, well-drained soil, but will tolerate poor soil. Sow seed in sand or peat following a 2- to 3-month period of cold stratification. Zone 5.

193. Evodia hupehensis. Evodia. Large tree to 60 feet in height. Bears 6-inch corollas of white flowers and has interesting red-brown fruit that is ornamental. Rare in this country. Probably hardy to Zone 6.

194. Gymnocladus dioica. Kentucky coffee tree. Deciduous, 100-foot tree bearing foot-long racemes of greenish-white flowers in May and June. Seeds, which are borne in 10-inch, red-brown pods, were once used as a coffee substitute. Full sun; average soil. Sow indoors following a scarification treatment for hard seed coat. Alternate medium temperature between 85°F days and 70°F nights. Germination takes 20 to 30 days. Zone 6.


196. Juniperus virginiana. Eastern red cedar. Large evergreen to 75 feet in height. Full sun; average soil. Soak fruit in water for several hours, then macerate to extract seed. Sow outdoors for germination the following spring. To sow indoors, soak seed in 1% solution of citric acid for 4 days followed by a 1- to 4-month period of cold stratification. Germination takes 20 to 60 days. Zone 3.
197. Koeleria paniculata. Golden-rain tree. Small, deciduous, 16- to 35-foot tree. Bears loose, terminal panicles of attractive yellow flowers from July to September. Flowers are followed by fascinating, triangular, balloon-like, 1½- to 2-inch seed capsules held on tree through fall. Sow outdoors in fall or sow indoors after a scarification treatment for hard seed coat followed by a 1-month period of cold stratification. Germination takes 20 to 45 days. Zone 5.

198. Magnolia × soulangiana. Saucer magnolia. Small, deciduous tree to 15 feet. Flowers, which appear before the leaves in spring, are purplish on the outside, white on the inside, and up to 6 inches across. Difficult to transplant. Sow outdoors in fall or indoors following a 3- to 4-month period of cold stratification. Germination takes 1 to 2 months. Zone 5b. Limited supply.

199. Prunus pennsylvanica. Pin or wild red cherry. Deciduous tree to 35 feet in height. Finely toothed, oblong-lanceolate foliage gives good red fall color. Bears white flowers in clusters of 2 to 5 and small, bright red fruits favored by birds. Sow seed outdoors following a scarification treatment for hard seed and a 2- to 3-month period of cold stratification. Sow in sand-peat mix and bury seed to a depth of 1 inch. Zone 2.

200. Ptelea trifoliata. Common hop tree, water ash. Small tree to 25 feet in height. Has chestnut-brown bark and aromatic foliage. Bears greenish-white flowers in spring or early summer. Likes shady locations and porous soil. Sow outdoors in fall or indoors in spring following a 3- to 4-month period of cold stratification. Zone 5.

Vines


205. Cardiopermum halicacabum. Balloon vine. A woody perennial vine that is a showy vine from July to September. Flowers, which appear before the leaves in spring, are purplish on the outside, white on the inside, and up to 6 inches across. Difficult to transplant. Sow seed outdoors in spring. Zone 6.

VEGETABLES

Our vegetable selections this year include tasty plants that are relatively simple to grow and some that are ornamental as well. All should be sown following the ‘General Germination Instructions’ on page 3 combined with the specific directions accompanying the individual plant description.


209. Asparagus officinalis var. altiis ‘Martha Washington’. Garden asparagus. Long-lived perennial that produces an edible vegetable for harvest in the spring. Requires about 4 years to reach maturity from seed. Good, deep soil; proper fertilization and disease and pest control. Sow in spring after frost date. The following spring dig up roots and select the most vigorous for planting in a permanent location. Needs warmth for germination, which takes 7 to 10 days indoors or 10 to 21 days outdoors.

210. Celeriac ‘Alabaster’ (Apium graveolens var. rapaceum). Close relative of celery grown for its edible roots, which can be eaten raw or boiled. Also called turnip-rooted celery. Roots have celery flavor and can reach 4 inches in width and 3 to 6 inches in length. Full sun; very well-drained soil. Sow seed outdoors in early spring at a depth of ½ inch. Harvest 120 days after sowing.

211. Celtrice. A Lactuca sativa or lettuce hybrid, parentage unknown. Young foliage is excellent in salads, and heart of central stems tastes like celery. Central stem can be eaten raw or cooked. Full sun; average, well-drained soil. Sow outdoors in early spring for spring crop, or sow in late summer for fall crop. Good winter crop for Zones 9 and 10. 75 days from sowing to foliage harvest; 90 days to stalk harvest.

212. Corn, Red Dent. Edible, large-eared corn that turns dark red if allowed to remain on plant to maturity. Very colorful and ornamental. See #213 for cultural and germination information.

213. Indian corn, dwarf. A dwarf cultivar of Zea mays with variously colored kernels. Ears are 2½ to 4 inches in length. Plants are 2 to 4 feet tall. Full sun; well-drained soil. Sow outdoors after all danger of frost past and soil has warmed up. Plant at a depth of ½ inch in several rows 2½ to 3 feet apart. Within the rows, space plants 10 to 14 inches apart. Wind-pollinated; must be planted in several rows if ears are to be filled with kernels.

214. Tampa (Amaranthus tricolor). Four-foot vegetable grown for its edible foliage. Makes good spinach substitute when cooked. Eaten raw in salads, and stems can be cooked like asparagus. Has ar puta-slick-like flavor. Full sun; average, well-drained soil. Sow seed outdoors in early spring at a depth of ½ inch. Harvest 70 days after sowing.

215. Tomato ‘Heartland’. A compact tomato that grows to only 3 or 4 feet in height. Although it is compact, this cultivar is indeterminate, so it produces fruit all season. Over 14,000 gardeners tested this plant in 1984 as part of a contest to find the best name for the plant. Full sun; well-drained soil. Sow indoors using general germination instructions for annuals.
SUGGESTED READING

All of the following books are available through the Society's Book Service. To order, use the coupon on the order blank on page 16 of this catalogue.

Ball Red Book: Greenhouse Growing, 14th Ed. Vic Ball, Editor. 720 pages. Essential reference on all aspects of commercial production of horticultural crops. Over 425 pages devoted to the cultural requirements of specific crops. Includes a chapter on seed germination, a table on when to sow for a certain bloom date, and some additional instructions. Hardcover, $26.95. AHS member price, $22.65.

The Step-by-Step Guide to Plant Propagation. Philip M. Browe. 96 pages. Illustrated, easy-to-read guide that has a chapter on seeds. Includes general information on seed collection, storage and sowing, as well as information on alpines, bedding plants, herbaceous plants, woody and some exotics. Also covers seed bed preparation and methods of breaking seed dormancy. Softcover, $9.95. AHS member price, $7.95.

Plant Propagation Principles and Practices. Hartmann and Kester. 662 pages. Considered one of the definitive textbooks on the subject. This book presents complete, up-to-date coverage of all phases of plant propagation. Approximately 130 pages are devoted to seed propagation alone, and an additional 100 pages cover the propagation of selected plants. Hardcover, $31.95. AHS member price, $25.50.

Growing and Propagating Wild Flowers. Harry R. Phillips. 331 pages. Extensive information on growing and propagating many species of wildflowers. Covers collecting, cleaning and storing seed; dormancy and pre-germination techniques, and propagation, cultivation and landscape uses for each plant. A chart of production timetables is also included. Hardcover, $24.95; softcover, $14.95. AHS member price, $21.20 (hardcover), $12.70 (softcover).

Growing and Saving Vegetable Seeds. Marc Rogers. 140 pages. Contains general information on seeds and specific information arranged by families. Each vegetable is discussed in detail. Problems you may encounter are presented along with their solutions. Softcover, $7.95. AHS member price, $6.36.

Plant Propagation for the Amateur Gardener. John I. Wright. 216 pages. General seed propagation information is covered briefly but completely. 150 pages are devoted to specific propagation information for individual plants. Includes a lot of material on seed propagation of numerous plants in an easy-to-read format. Hardcover, $16.95. AHS member price, $13.05.

U.S.D.A. HARDINESS ZONE MAP
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Fungus Kills Gypsy Moth

The mere mention of the words "gypsy moth" sends shivers down the spine of any deciduous tree lover, but U.S. scientists may have acquired the ultimate weapon in the war against these pernicious pests—a fungus imported from Japan.

Richard S. Soper, Jr., insect pathologist at Cornell University in Ithaca, New York, traveled to Japan to collect dead gypsy moths from which he isolated four living strains of the fungus 

Entomophaga aulicae, apparently a potent killer. Although Japanese scientists first discovered the fungus early in this century, isolating and propagating living specimens was not possible until recently, Soper explained.

In laboratory tests at the Boyce Thompson Institute at Cornell University, Soper injected spores from his collected specimens into native gypsy moths, and the fungus killed more than 90 percent of the moths. According to Soper, the fungus lies dormant in the soil most of its life. After it becomes active and breeds, it releases tiny spores that land on the gypsy moth larva's body. The spores then germinate and bore into their hosts to feed and grow.

Entomologist Mutsuki Shimazu of the Forest and Forest Products Institute, Tsukuba, Japan, joined Soper in early 1985 to study the conditions under which the imported fungus would thrive in U.S. forests. The scientists first used growth chambers that simulate the environment of the northeastern United States, where gypsy moths are particularly destructive. Field tests followed in New York's broadleaf forests, and the fungus was as successful in killing gypsy moths that infested oaks, maples and beeches as it was under laboratory conditions. Future tests will concentrate on oak stands, which are the primary hosts of the pests.

Despite these positive results, many scientists do not anticipate rapid deployment of the fungus for use as a pesticide. Detailed evaluation of the available data must be made before widespread testing can be started. According to Ray Carruthers, a research entomologist for the Agricultural Research Service who also is working on the experiments, that could take years. Scientists with the U.S. Forest Service have no plans

Plants Wanted

Members who are growing or who have access to any of the plants in this month's column are invited to help their fellow members locate seed, plants or cuttings of their "Plants Wanted" by writing directly to the addresses listed below.

Please send your "Plants Wanted" lists, including genus, species, common name and a brief description, to "Plants Wanted" in care of the Society. Please type or print neatly. We will publish them on a space-available basis after checking for sources in the Society's mail-order catalogue file.

- Cinchona officinalis (also listed as C. condaminensis), a tree with rough, brown bark and leafy, ovate-lanceolate leaves. Bears deep pink flowers. Bark is a source of quinine. Native from Colombia to northern Peru.
- Ephedra distachya, joint fir, a species from southern Europe and northern Asia that grows to three feet, but is often lower or trailing. Bears cones with somewhat spherical seeds. A source of ephedrine. Ephedra minimina, a Chinese species of joint fir that grows only to five inches. Usually erect or climbing. San Diego Wild Animal Park, 15500 San Pasqual Valley Road, Escondido, CA 92027.
- Quercus petraea, durmast oak grows to 80 feet or more and has long-petioled leaves, much like those of Q. robur, English oak. Native to Europe and western Asia. Mrs. Mack H. Jolly, Jolly Enterprises, 3291 Lancaster Lane, Montgomery, AL 36106.
- Salix viminalis, osier or basket willow, a shrub or small tree that grows to 30 feet. Branchlets are covered with gray hairs. Grown as an ornamental and used for basketry. Deborah A. Reich, 215 Mulberry Street, New York, NY 10012.
to use the fungus in the future, but according to William Wallner, research project leader for Forest Insect and Disease Research, they also have not ruled out the possibility if studies show the fungus is highly successful. The Forest Service’s skepticism was explained by Ken Knaur, assistant director of Forest Pest Management: “We’re not holding our breath. The conditions the fungus has to have [to be successful] are extremely rigid, and the likelihood that they will all exist at once is extremely low.”

If it is used as an insecticide in the future, Soper says the spore-producing parts of the fungus might be ground into a powder and sprayed over larvae-infested forests. As the powder got wet, it would produce the spores that attack the gypsy moth larvae.

—Russell Kaniuka, Agricultural Research, June/July 1985, American Forests, November 1985

Book List Available

Society members may request free copies of our updated and improved Book Buyer’s Service Book List by writing to Mrs. Jeanné Eggeman, PO Box 0105, Mount Vernon, VA 22121, or by calling her at (703) 768-5700.

The 16-page list, which features over 350 volumes, allows members to order some of the finest gardening books in print at very special discount prices. Even if you order only a book or two per year, you may well save enough money on these purchases to cover the cost of your Society membership dues!

The books are divided into categories such as Cacti and Succulents, Dictionaries, Encyclopedias, and General Reference; Herbs and Medicinals; Perennials; and Pests, Diseases, and Weeds. The list has something for everyone, and brings you books you probably could not find in your local bookstore or library.

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In addition, we are offering two other European Horticultural Explorations:

**Spring England and Chelsea** (May 8-23) and **Fall England** (September 10-25).

Enjoy three different European itineraries escorted by horticulturists. All include visits to private homes and gardens in addition to interesting cultural and historical sights. Since these trips usually are fully subscribed, we suggest early enrollment, particularly for those who wish single hotel rooms.

For your free brochures on these Horticultural Explorations led by horticulturists, please write to Education Department, American Horticultural Society, Box 0105, Mt. Vernon, VA 22121. Or call collect: (513) 281-7000.
The American Horticultural Society is sponsoring an exciting program of horticultural explorations for the 1986 season. Plan to join fellow AHS members on one or more of these exciting garden-related tours.

China Exploration: (April 9-29) Learn about the plants, gardens, art, architecture and history of China on an exploration through the coastal, mountain, subtropical and temperate areas of the country. AHS board member Richard Hartwell will lead a good-will delegation to strengthen horticultural ties between China and America. William Wn, Co-Chairman of the Shanghai-San Francisco Friendship City Cultural Committee, and Andrew Lenzer, an authority on Chinese plants, recently retired from the Royal Botanic Garden, Edinburgh, will lead the tour.

Aegaeum & Adriatic Cruise: (April 19-May 8) Sail aboard the yacht Argonaut on a spring wildflower exploration amidst the treasures of antiquity in Greece and the Greek islands, and tour the palaces and gardens of Yugoslavia and Italy. Explore Athens, Delphi, Mikonos, Venice, Villa d’Este and Lake Como. Dorothy Temple, former White House Florist, will lead a flower-arranging symposium on board. Co-leader is Martin F. S. Sandis, Senior Botanist, Royal Botanic Gardens, Kew, England.

Spring England & The Chelsea Flower Show: (May 8-23) Visit public and private British gardens at the peak of spring bloom. See the Cornish Riviera and visit Clarion Court, Stourhead, Nymans and Wakehurst Place. Spend a full day at the Chelsea Flower Show. Tour Leaders: Sue McDonald, former Palm House Curator at Kew, and Helen Clapp, lecturer and historical expert.

YES! Please send me more information on the tours I have checked below.

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New Publications

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This fascinating book by Edwinna von Baeyer will be of interest to Canadian gardeners and garden historians alike. An introductory chapter, entitled "The Moral Garden: Gardening and Reform in Canada," is devoted to the events and social pressures that set the stage for the gardening movements that took place during the early years of the 20th century. The author then continues with discussions of four major gardening movements that were important in Canada from 1900 to 1930: the remarkable Canadian Pacific Railway Company gardens, which decorated railway stations across the country; gardening in the schools; urban beautification; and home gardening. There are also chapters devoted to the development of nurseries, horticultural writing and plant breeding in Canada. The text is liberally illustrated with black-and-white photographs.

Rhetoric and Roses (197 pages; hardcover. Retail price $29.95) is available from the Society at a member price of $29.45, including postage and handling. To order a copy, write to Jeanne Eggeman, American Horticultural Society, P.O. Box 0105, Mount Vernon, VA 22121.

Potpourri ... Easy as One, Two, Three! This little booklet by Dody Lyness is an excellent handbook for individuals who would like to learn more about making potpourri. Although there are no illustrations, the 55-page booklet is filled with useful information about picking, drying and storing materials for potpourri. The section on drying, for example, includes not only directions for the conventional air-drying method, but also for drying in a microwave, a food dehydrator, a conventional oven and a gas oven with a pilot light. Discussions on mixing recipes, displaying potpourris, using pressed flowers in potpourris and making sachets are also included. Finally, 16 pages are devoted to recipes for potpourri. In addition to many recipes for dry potpourri, the author also has included instructions for moist potpourri, no-fixative blends and winter spice jars.

Potpourri ... Easy as One, Two, Three! is available for $5.95, including postage and handling. To order a copy, write Berry Hill Press, 7336 Berry Hill, Rancho Palos Verdes, CA 90274.

Flower Arranging Quarterly
Flower arranging enthusiasts will want to subscribe to this new quarterly publication. The 19-page premiere issue has both full-color and black-and-white photographs, and features articles on a variety of topics, including church decorations, arrangements for the home, and an interview with a flower-arranger from the Boston area. The editors of Flower Arranging Quarterly promise to include information on working with flowers, fruits, weeds and foliage, and also to include announcements about what is going on in the world of design. A one-year subscription, mailed in the United States, costs $10.00. For more information, write FLORAMERICA, Flower Arranging Quarterly, P.O. Box 263, Westwood, MA 02090.

Chestnutworks. This publication, put out by the Chestnut Growers Exchange, is a quarterly journal devoted entirely to the subject of chestnuts—from chestnut culture and propagation, to history and recipe ideas. Recent issues include articles on the First Annual Pacific Northwest Chestnut Conference, chestnut nutrition and chestnut grafting, as well as interesting recipes for Chestnut Chicken Casserole, and Cream of Chestnut Soup. The journal also includes information on chestnut blight, a fungal infection that ravaged the American chestnut (Castaclea dentata) throughout its range. For those interested in this unique and diverse horticultural crop, a year's subscription to Chestnutworks costs $10. For more information, write the Chestnut Growers Exchange, PO Box 12632, Portland, OR 97212.

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