

AMERICAN HORTICULTURIST

NEWS EDITION

MARCH 1982

Help for Endangered Plants

Amendments to the Lacy Act, signed into law on November 16, 1981 by President Reagan, will help aid plant conservation by prohibiting the interstate sale of rare plants that have been collected in violation of state law. Until now, states with plant conservation programs and laws have been considerably hampered because they had no jurisdiction over the sale of illegally collected plants beyond their borders. Plants protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (C.I.T.E.S.) also will be covered by the Lacy Act. Since it is unlikely that any of the almost 3,000 plant species identified by the United States Fish and Wildlife Service as needing protection will be proposed for listing as Endangered or Threatened species in the near future, the new Lacy Act amendments should be very helpful in protecting species identified as rare by the states or C.I.T.E.S. Eight states already have plant protection laws and will benefit from these amendments—Arizona, California, Michigan, New Mexico, Nevada, Texas, Florida and North Carolina.

According to the *Endangered Species Technical Bulletin*, December, 1981, "The market for certain plants, including cacti, orchids, and several carnivorous (insectivorous) plants is quite lucrative. Therefore, in the recent past suppliers have not hesitated to violate state laws as well as regulations that protect plants in national parks and other Federal lands." The new amendments will allow the Federal government to investigate violations of state laws anywhere within the United States and should help to control the illegal traffic. Last year



Kalmia cuneata, commonly called white wicky, is an endangered plant native to North and South Carolina.

W.S. Justice—Smithsonian Collection

"cactus rustlers" stole approximately \$500,000 worth of plants from the state of Arizona alone, including 400 saguaros, which can be sold for several hundred dollars each. Plant theft also is a major problem in other states such as Florida where rare bromeliads, orchids and pitcher plants often are stolen and sold in interstate trade.

The new Lacy Act amendments provide for up to \$20,000 in fines

and prison terms of up to five years for selling illegally acquired plants with a value of over \$350.

The Lacy Act, passed in 1900, was one of the first Federal wildlife laws. Originally passed to outlaw interstate traffic in birds and other animals illegally killed in their state of origin, it has been amended several times and now also protects wildlife taken in violation of foreign as well as state law.

Member Tip for Planting Seedlings

Styrofoam egg cartons make excellent, handy containers for growing plants from seed. I prepare the cartons for use by cutting the top off of the compartmented bottom and cutting off and discarding the locking flap. Then I poke a hole through each compartment near the bottom to provide drainage. Invert the top of the carton under the bottom to serve as a water reservoir.

I have found the cartons very useful for several applications. First, I use them when planting seeds where I only will need a few plants, for example, the seasoning herbs such as marjoram, chives and parsley. In this case I sow a few seed in each compartment and thin as necessary. When the seedlings are large enough I transplant them directly to the garden.

Secondly, I use egg carton containers when growing bedding plants such as begonias whose seed and seedlings are small. Begonias don't seem to need a lot of root space before moving into the garden. In this case, I germinate the seed in 5 1/2" x 7 1/2" Jiffy flats, which can be purchased from Park Seed Company, Inc., Greenwood, South Carolina 29647. I try to distribute the very fine seeds uniformly over the sow and grow mix in the flats. Germination is somewhat erratic and occurs over a long period of time, so the seedlings are ready to transplant at various times. I prick the tiny seedlings out and transplant them into egg cartons where they will grow until they are ready to go into the beds. In this way, since I want several dozen plants, I don't have to waste the seed and seedlings as I would have to do if I planted directly into egg cartons and then thinned out the extra seedlings.

Finally, I use egg carton containers for germinating species where I have only a few seeds (one

dozen or less). In this case I put only one seed in each compartment. For example, I received six seeds of *Franklinia alatamaha* from the 1981 AHS free seed program. I planted them in moist grow mix in the egg carton, placed the carton in a plastic bag and stored it in the freezer for about a month. It is very easy to get the plant, roots and medium out of the egg compartment with a spoon.

—W. P. Bebbington,
Aiken, South Carolina



AMERICAN HORTICULTURIST

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Member of Society of National Association Publications

More Advice on Seed Germination

Pre-sowing treatment such as scarification, soaking or nicking the seed coat is a necessary step when germinating seed with hard seed coats. In an article for *Australian Plants*, December 1980, W. H. Payne reports that pouring boiling water over seeds proved to be an easy and successful pre-sowing treatment. Mr. Payne is experimenting with different methods for treating, germinating and growing different species of Australian wildflowers.

After dividing samples of hard-coated seed into two groups, Payne placed seed from the first group into cups and filled the cups with boiling water. He left the seed to soak in the water for from three to seven days. The other group of seeds served as a control, and Payne treated them using a more conventional technique—he nicked each seed coat with a razor blade. The seed was pre-germinated in papier-mache egg cartons. Payne placed the

seed in the compartments of the bottom of a dampened egg carton. The bottom of another carton, also moistened, was placed on top to hold the seed in place. Payne labeled both the top and the bottom carton with the name of the species in each compartment.

In his article Payne says, "Seed that had had its outer coat pierced to let in moisture germinated first. It is not easy to do this with small seed and took many hours of work. Inevitably some seed was damaged by my clumsiness. But! The seed that copped the boiling water germinated as well. Not hot, but boiling water. Some people claim the seed would get cooked. I guess you can overdo it, but my results show that water boiled in an electric jug and then immediately poured on seed in a cup . . . does not harm the seed. I did find that some seed did not germinate, but after two weeks in the egg carton without germination I re-

moved the seed, washed off the sticky substance that seemed to have formed, soaked in warm water and replaced in a fresh egg carton."

Payne recommends using boiling water only on seed with hard seed coats. Other species can be treated by soaking in warm water.

Pre-germinating Seed: Method One . . .

A plastic sandwich bag can make an excellent miniature "greenhouse" for pre-germinating seed, suggests the American Rhododendron Society in its Summer, 1981 quarterly bulletin. Pre-germinating seed is an especially useful technique when used with plants that are to be transferred into individual containers, species that are very slow to germinate and old seed that is less viable.

To pre-germinate seed in a plastic bag simply moisten and fold one-half of an ordinary paper towel and sprinkle seed on the towel. Place the moistened pad of paper towel in the bag, fold down the top of the bag

and staple or tape it shut. Be sure to label it with the name of the plant and the date, and leave the bags in a location where they will receive diffuse light and temperatures of between 65° and 70° F. Watch for mold and mildew on the paper towel. If any develops the towel was probably too wet.

As soon as the seeds develop a small root system, carefully transplant to individual containers filled with a growing medium appropriate for seedlings. Loosely cover the transplants with clear plastic film until they become established, at least until they develop their leaves.

Method Two

The National Garden Bureau recommends a slightly different method for pre-germinating seed using milled sphagnum moss in plastic bags. They also point out that pre-germination be used to eliminate the need for the thinning, and that, surprisingly, it is not at all a new idea. American Indians pre-germinated bean seeds in shallow clay dishes. They filled the dishes with sand, planted the seeds and then covered them with warm ashes for three or four days to speed germination. The seedlings were dropped into holes and covered with soil as soon as root tips emerged. The Indians used this technique for planting early crops, because the cool soil at that time of the season tends to slow germination, and seed planted in the usual fashion often would rot before it had a chance to germinate.

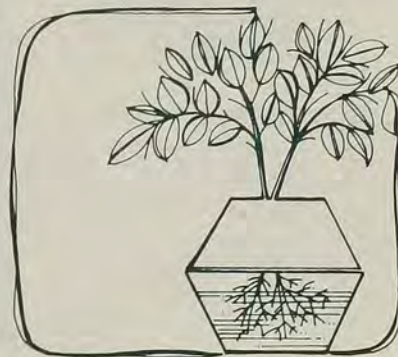
The Garden Bureau recommends pre-germinating in plastic bags with milled sphagnum moss (not sphagnum peat). Sphagnum moss makes an excellent medium because, once moistened, it will hold a great deal of water and it is acidic enough to discourage the growth of fungi or

other disease organisms that might rot the seed. To moisten the sphagnum, roll some in a towel, moisten the towel and wring it. Re-moisten and wring again in about an hour. The seed will not require a great deal of moisture to germinate, and the amount of moisture left in the moss will be more than sufficient. Partially fill each bag with some moist moss, add a pinch of seeds, label the bag with the species and cultivar of seed and the date of planting, seal the top of the bag shut and then shake to mix the seeds into the sphagnum. The bags can then be placed where they will receive the proper temperatures for germination, depending on the species.

When about half of the seeds have sprouted, prepare a container and transplant the seedlings. Moisten the medium before transplanting because a dry medium can dry out the seedlings and very quickly kill them. It also is important to work quickly, because the tender root systems will dry out very easily. Only remove a few seedlings from the bags at a time. Seedlings that are planted askew will straighten in time.

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Germinating Seed: Another Method

Bricks, believe it or not, are the secret to keeping freshly sown seed evenly moist with a minimum of fuss says Ralph Balcom in the Fall, 1980 issue of the American Primrose Society Bulletin, *Primroses*.

Primrose seed, like most other types of seed, must not be allowed to dry out after it has been sown, even for an hour or two, or the seed generally will not germinate. Gardeners deal with this problem in a variety of ways—from hourly hand misting to sealing containers in plastic bags to elaborate automatic watering systems, but few systems seem as practical, and as little known, as germinating seed on bricks covered with soil. This idea, says Mr. Balcom, is quite popular among primrose enthusiasts in his area.

To construct a brick-watered container, start first with an ordinary brick, never a glazed one. With old crating or other scrap wood build a box that fits tightly around the sides of the brick when it is lying face up. Since this box or frame will serve to hold the growing medium the seed will be germinated in, it should extend about 1 1/2 inches above the top of the brick.

Fit the brick into its frame (if you didn't make the frame with the brick already in place), and make sure it slides all the way to the bottom so you will have room for soil on top. A nail or two nailed through the frame and extending under the brick will serve to keep the brick from falling out the bottom. Chicken wire staple-gunned across



the bottom also would serve the same purpose.

Spread an appropriate germinating medium on the top of the brick to within one-half inch of the top of the frame/container. The medium will vary slightly depending on the seed you plan to sow, but it probably would consist of some combination of peat, sphagnum moss, perlite and/or vermiculite. Since soil-less mixtures can be hard to wet, moisten the mixture before putting it on top of the brick.

Spread the seed to be germinated on the medium, and place a piece of glass or plastic over the frame to conserve moisture. A sheet of paper will reduce the amount of light reaching the seed if necessary.

Set the brick and frame into a shallow pan of water, which will serve as a reservoir. Keep the water level high enough so that it is always touching the brick, but never covering it. Obviously, if the water reaches the top of the brick the germinating medium will become waterlogged, a situation just as deadly to seed as overly dry medium.

Membership Invited to Submit Board of Directors Nominations

It is not too early to begin thinking about nominations for the Board of Directors election scheduled for the Annual Meeting in Cincinnati, September 29-October 2, 1982. President Daniels has appointed the Nominating Committee for 1982. It consists of Mrs. John M. Maury, Chairman, Mr. Richard J. Hutton

and Mrs. Harry J. Van de Kamp. Members are encouraged to submit names (send in care of the Society) to the Nominating Committee. Suggestions should be accompanied by resumes detailing the candidate's horticultural and/or professional interests.

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		SELF															

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_____ miles.

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Model (Nova, Granada, etc.)			
Body type: 2/4 dr. sdn, hardtop, sta. wag			
No. of cylinders			
Est. Annual Mileage			
Days per week driven to work or parking area			
One way driving distance			
Is car used in business (except to/from job)?			

If "yes" explain _____

*For accidents, violations, or license suspension, give dates and complete details, including cost of damages, on a separate sheet.

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CALENDAR

March 3-7

Greater Des Moines Home and Garden Show
Veterans Memorial Auditorium
Des Moines, Iowa

Hours: Wednesday 4:00 p.m. to 10:00 p.m.;
Thursday and Friday noon to 10:00 p.m.;
Saturday 10:00 a.m. to 10:00 p.m.; Sunday
noon to 8:00 p.m.

Admission fee: \$3.00

March 4-7

Metropolitan Louisville Home, Garden and
Flower Show
Kentucky Fair and Exposition Center—East
Wing
Louisville, Kentucky

Hours: Thursday and Friday 6:00 p.m. to
11:00 p.m., Saturday 1:00 p.m. to 11:00
p.m., Sunday 1:00 p.m. to 9:00 p.m.

March 4, 11, 16 and 25

Winter Lecture Series
American Horticultural Society
Mt. Vernon, Virginia

Information: Call or write Dorothy Sowerby
at the Society.

March 5-14

Cleveland Home and Flower Show
Cleveland Public Hall/Convention Center
Complex
Cleveland, Ohio

Hours: Friday, March 5th, 4:00 p.m. to
11:00 p.m.; Saturdays and Friday, March
12th 10:00 a.m. to 11:00 p.m.; Monday
through Thursday 11:00 a.m. to 10:00
p.m.; Sundays 10:00 a.m. to 8:00 p.m.

Admission Fee: \$4.00

March 6-14

Long Island Flower Show
George E. Nold Exhibition Hall
New York State University
Farmingdale, New York

Hours: March 6-13 11:00 a.m. to 10:00
p.m.; Sunday, March 14th 11:00 a.m. to
8:00 p.m.

Admission fee: Adults \$4.00, children 2.00,
Senior Citizens weekday discount \$3.00

March 6-14

1982 Indiana Flower and Patio Show
Indiana State Fairground
Exposition and Expo-Pavilion Buildings
Indianapolis, Indiana

Hours: Monday through Thursday 11:00
a.m. to 9:00 p.m.; Friday and Saturdays
11:00 a.m. to 10:00 p.m.; Sundays 10:00
a.m. to 8:00 p.m.

March 7-14

Philadelphia Flower Show



Pennsylvania Horticultural Society
Philadelphia Civic Center
Philadelphia, Pennsylvania

Hours: Monday through Saturday 10:00 a.m.
to 9:30 p.m.; Sunday 10:00 a.m. to
6:00 p.m.

Admission fee: Adults \$5.00, children \$2.50

March 11-12

Perennial Flowers Conference
Longwood Gardens
Kennett Square, Pennsylvania
Fee: \$65.00

Information: Longwood Gardens, Inc., Ken-
nett Square, PA 19348, (215) 388-6741
ext. 516

March 13-21

11th New England Spring Garden and
Flower Show
Commonwealth Pier Exhibition Hall
Boston, Massachusetts

March 13-21

Buffalo Home and Garden Show
Buffalo Convention Center
Buffalo, New York

Hours: Saturdays, Sunday March 14, Mon-
day and Friday 11:00 a.m. to 10:00 p.m.,
Tuesday through Thursday 4:00 p.m. to
10:00 p.m., Sunday March 21, 11:00 a.m.
to 6:00 p.m.

Admission fee: \$3.00, children under 12 free

March 18-21

Central Missouri Home, Lawn and Garden
Show
Hearnes Multi-Purpose Building
Columbia, Missouri

March 21-April 18

Spring Flower Show
Phipps Conservatory
Pittsburgh, Pennsylvania
Hours: Daily 9:00 a.m. to 5:00 p.m. and
7:00 p.m. to 9:00 p.m.

Information: (412) 255-2376

March 24-28

Baltimore Flower and Garden Show
Baltimore Convention Center
Baltimore, Maryland
Hours: Wednesday through Saturday 10:00
a.m. to 10:00 p.m., Sunday 10:00 a.m. to
8:00 p.m.

March 24-28

New Hampshire Flower and Garden Show
National Guard Armory
Canal Street
Manchester, New Hampshire
Hours: 10:00 a.m. to 9:00 p.m.
Admission Fees: \$3.00, \$2.50 for Senior citi-
zens and advance sale, children under 12
free

March 27

Fourth Annual Winterthur Gardens
Conference
Theme: Colonial Revival Gardens, colonial
style gardens from the late 19th to mid-
20th centuries
Winterthur Museum and Gardens
Winterthur, Delaware
Information: Gardens Conference, Education
Division, Winterthur Museum and Gar-
dens, Winterthur, DE 19735,
(302) 656-8591

March 28-31

Williamsburg Garden Symposium
Williamsburg Conference Center
Williamsburg, Virginia

March 31-April 4

Edmonton Home and Garden Show
Sportex Building/Exhibition Grounds
Edmonton, Alberta, Canada

April 1-3

American Daffodil Society Annual Conven-
tion and National Show
Headquarters: Radisson Hotel
Show and Annual Meeting: Hermitage Hotel
Nashville, Tennessee

April 3-4

Boyce Thompson Southwestern Arboretum
Sixth Annual Plant Sale
Boyce Thompson Southwestern Arboretum
Superior, Arizona
Hours: 8:00 a.m. to 5:30 p.m.

April 8-14

48th Minnesota Home and Garden Show
Minneapolis Auditorium
Minneapolis, Minnesota
Hours: Thursday and Monday through
Wednesday 4:00 p.m. to 10:00 p.m., Fri-
day and Saturday noon to 11:00 p.m., Sun-
day noon to 7:00 p.m.

April 8-October 10

Floriade '82, A once-a-decade horticultural
exhibition
Amsterdam, Holland
Information: Netherlands National Tourist

Office, 576 Fifth Avenue, New York, NY
10036 or a local tourist office

April 9-25

Dogwood Arts Festival
Knoxville, Tennessee
Information: Dogwood Arts Festival, 203
Fort Hill Building, Knoxville, TN 37915,
(615) 637-4561

April 10-18

Portland Home and Garden Show
Multnomah County Exposition Center
Portland, Oregon
Hours: Weekdays 6:00 p.m. to 10:30 p.m.,
Saturdays 1:00 p.m. to 10:30 p.m., Sunday
April 11 1:00 p.m. to 8:00 p.m., Sunday
April 18 1:00 p.m. to 6:00 p.m.

April 16-18

Metropolitan Miami Flower Show
Tropical Park, at Bird Road and the Palmetto
Expressway
Miami, Florida
Hours: Friday 4:00 p.m. to 10:00 p.m., Sat-
urday 10:00 a.m. to 10:00 p.m., Sunday
10:00 a.m. to 6:00 p.m.

April 17

Rhododendron and Azalea Show
Northlake Mall
Atlanta, Georgia
Hours: 10:00 a.m. to 9:30 p.m.
Information: Dr. Joseph Coleman, 7997
Pleasant Hill Road, Lithonia, GA 30058

April 17

Longwood Program Spring Symposium
Theme: Alternative Sites for Public Gardens
Longwood Gardens
Kennett Square, Pennsylvania
Admission Fee: Before April 5, \$12.00, after,
\$16.00, includes admission to the gardens.
Luncheon following symposium \$8.00 per
person
Information: The Longwood Program, 153
Agricultural Hall, University of Delaware,
Newark, DE 19711, (302) 738-2517

April 23-25

American Horticultural Society
Spring Symposium
Washington D.C.
Information: call or write Dorothy Sowerby,
AHS, Box 0105, Mt. Vernon, VA 22121
(703) 768-5700

April 24-25

45th Annual Rose Show
Pacific Rose Society
Los Angeles County Arboretum
301 North Baldwin Avenue
Arcadia, California
Hours: Saturday 1:00 p.m. to 4:30 p.m., Sun-
day 9:00 a.m. to 4:30 p.m.
Admission fee: Admission to the Show is free,
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\$1.00 for adults, \$.50 for senior citizens,
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May 1

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Annapolis, Maryland

Information: Historic Annapolis, Inc., Tour Office, 18 Pinkney Street, Annapolis, MD 21401, (301) 267-8149, weekends (301) 263-5553

May 6-8

Restoring Southern Gardens and Landscapes Conference

Old Salem

Winston-Salem, North Carolina

Information: Department of Education and

Interpretation, Old Salem, Inc., Drawer F, Salem Station, Winston-Salem, NC 27108, (919) 723-3688

May 11-13

International Rhododendron Conference

Royal Botanic Gardens

Edinburgh, Scotland

May 16, Rain Date May 23

Spring Open House

American Horticultural Society

River Farm

Mt. Vernon, Virginia

Information: Phone or write Dorothy Sow-erby at the Society

May 19-21

Royal Horticultural Society Chelsea Show
Chelsea, London

Information: The Royal Horticultural Society, Vincent Square, London, England SW1P 2PE, Telephone 01-834-4333

Join the Virginia Wildflower Society

The Virginia Wildflower Preservation Society invites you to consider membership in a statewide effort to preserve native plant communities endangered by the encroachment of commercial and residential development. They plan to rescue threatened colonies and specimens of rare and unusual plants and permanently relocate them to pre-determined conserves throughout the state.

The scope of related volunteer activities and membership benefits will be diverse, educational and rewarding. Several introductory charter meetings for prospective members, featuring a brief slide presentation, will be held throughout Northern Virginia in the evenings beginning March 11. For dates and other information call Mary Painter, Director, (703) 573-7747.

Dates to Remember

It is not too late to sign up for the remaining lectures in the Society's **Winter Lectures** at River Farm. Learn about Perennials, Colonial and Historic Landscape Design, Woodland Gardening and Plant Propagation on March 4, 11, 16 and 25.

Or, consider signing up for a tour of gardens this spring and summer. China, England's Chelsea Flower Show, Holland, Belgium, the Galapagos Islands off Ecuador's coast, Pennsylvania's Brandywine Valley and the historic Washington, D.C. area are just a few of the exciting places participants in Society sponsored tours can visit.

This spring the Society is sponsoring several exciting tours. From March 15 to 30 members will ex-

plore the **Horticulture, History, Art and Culture of Arizona** and enjoy visits to that state's famed Organ Pipe and Saguaro National Monuments, the Desert Botanical Garden and the Nature Conservancy Bird Sanctuary at Sonoita Creek.

From April 3 to 22 Society members will be touring the **Fabled Gardens and Cities of China**. Visit Canton, Peking, the Great Wall and the Forbidden City, sample the exotic cuisine and learn about this interesting land firsthand.

The **Spectacular Spring Gardens of Georgia and South Carolina** and the natural areas of this part of the country are well known. Callaway Gardens, Okefenokee Swamp, historic Savannah, Charleston, South Carolina and Middletown Place

Gardens are just a few of the stops scheduled for participating members on this tour from April 9 to 22.

Floriade '82, called the greatest flower show on earth, is one of the destinations on the Society's tour of **Flower Shows in Holland and Belgium**, scheduled from April 18 through 29. Also scheduled are visits to several Dutch mansions and palaces, and in Belgium, stops in Ghent and Brussels.

Also in April is the Society's Spring Symposium and the Post Symposium Tour of the gardens and mansions of the Middle Atlantic.

Every year the **Chelsea Flower Show** is one of the premier events in the gardening world. Visit this famous show and tour some of England's most beautiful areas from May 6 to 21. Scheduled are visits to Wisley, the garden of Mrs. Lee-Milnes, one of the editors of *The Englishwoman's Garden*, and Leeds Castle, considered by many to be the loveliest castle in the world.

Washington, D.C. area residents will want to reserve Sunday May 16, Rain Date Sunday, May 23, to attend our **Spring Open House**. We are planning a plant sale, tours of the house and gardens and displays by area plant societies, artists and craftsmen.

Our final tour for the spring is scheduled for May 26 through June 9 to Ecuador and the Galapagos. Participants will visit beautiful Quito high in the Andes, the Indian markets at Otavalo, Cuenca and Quayaquil before cruising to the Galapagos Islands for a seven-day tour.

There are several other exciting tours already scheduled for the summer and fall. Cruise the Mediterranean and visit its Villas and Palaces from June 8 to 18. Learn about Mountain Flora and the Remarkable Rockies from July 7-14. Tour China and the Grand Canal from September 7 to 30. In October members will be invited to tour Kentucky and Tennessee in Autumn (October 4-14), Australia and, also, England. Finally, in November, from the 1st to the 24th, members will tour the Orient.

For more information, brochures and reservation cards for any of the above activities, write to Dorothy Sowerby in care of the Society.

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The American Horticultural Society proudly presents its Spring and Summer Explorations. These are specially designed and exclusive. We visit both private and public gardens. In addition, local escorts give us highlights of history, scenery, and culture. These programs are suitable for all levels of horticultural interest.

HOLLAND AND BELGIUM (April 18-29)

See unique Keukenhof with its fine bulbs and park, and the Floriade, considered the "greatest flower show on earth," held only once every ten years. Visits to Aalsmeer flower market, quaint towns, lovely mansions, and small gardens in both countries.

MIDDLE ATLANTIC STATES (April 26-May 6)

Right after our Spring Symposium, join us for an in-depth visit of Washington, Wilmington, and Philadelphia. See Dumbarton Oaks, U.S. National Arboretum, Longwood, Winterthur, Brandywine Museum, Nemours, Hagley Museum, among others.

ENGLAND IN SPRING (May 6-21)

We spend an entire day at Chelsea Flower Show, plus visit famous public gardens like Stourhead. At some of the impressive private homes we will be greeted by the hosts and guided through their gardens, with tea served.

NEW ENGLAND (May 11-24)

Boston area visits include Arnold Arboretum and private gardens. We travel to the Berkshires and Vermont, nurseries and arboreta in Connecticut and Rhode Island. On Cape Cod see Heritage Plantation with its fine rhododendron collection.

ECUADOR AND GALAPAGOS (May 26-June 9)

This is a cruise of the Galapagos Islands, a truly unique travel adventure. Lectures by a resident naturalist gives us an in-depth view of endemic flora and fauna. Also see Andean Indian culture.

For copies of the free brochure that gives detailed information, please write Mrs. Dorothy Sowerby, AHS, Mount Vernon, VA 22121. Or telephone her at 1-703-768-5700.

Super Absorbents Save Time and Money

Super absorbents are a new group of wonder products that deserve the attention of gardeners and horticulturists in all parts of the country. These starch-based absorbents are capable of storing several times their weight in water as a gel, holding it available for plants and at the same time actually increasing soil aeration and improving drainage. Their gardening applications, both indoors and out, are many—use them to store water at the root zone of newly planted sod, use them in a seed bed where they will hold a layer of water next to the emerging seedlings, use them to improve the water holding capacity of sandy soils, or mix them into potting soil and use them to store large quantities of available water for container-grown plants both indoors and out.

These sponge-like compounds originally were developed by the U.S.D.A. Northern Regional Research Center in Peoria, Illinois, and, although they are now available in slightly different formulations under several different brand names, all actually are composed of a man-made acrylic compound chemically grafted to cereal grain starches. These powders, which in their dry form may look something like slightly off-color dry milk or wheat germ depending on the product involved, can absorb from 200 to 5,300 times their own weight in water.

I enjoyed experimenting with several different samples I received and compared their amazing absorbency levels. If you purchase one or more of the products in the source list at the end of this article, just for fun place one level teaspoon in two ounces of water. Some of the gels I tested absorbed the two ounces of water, some almost twice as much.

Water held as a gel by these compounds is fully available to plants and will remain in the soil until it is extracted by plants or until it evaporates. The gels will re-absorb water whenever it is available, thus creating a sort of shrink-swell cycle. These super absorbents will last through many such cycles, and in a growing environment they will re-



A super absorbent is shown here in its gel-like form.

main effective for a period of anywhere from six months to several years. They will gradually biodegrade in relation to the number of times they expand and contract.

Most important, these absorbents are able to store water without waterlogging the soil. As the particles of absorbent expand they force the soil particles apart, increasing aeration and improving drainage. Once the absorbents are fully saturated, any excess water will flow over and around them just as it would a saturated sponge. For gardeners this means that not only is the danger of root rot minimized, but also the lack of water stress imposed on plants and improved aeration actually help to speed plant growth.

These water absorbent polymers are compatible with all species of plants. They do not affect and are not affected by the pH of the soil or soilless growing medium, and, in their dry form, they can be stored indefinitely in a moisture proof container.

Obviously, a product with all of these characteristics could be put to an almost limitless number of uses in the garden. In the following paragraphs I will briefly discuss some of the ways they can be used.

Container-grown Plants

Super absorbents can be added to potting soil that is to be used for house plants, container-grown annuals and perennials in the garden, bedding plants and nursery stock. After a thorough initial drenching, plants grown in treated soil will require much less frequent watering.

That means container-grown vegetables, which often must be drenched more than once on a hot summer day, will need water much less often. Bedding plants sitting in tiny containers on a hot, sunny windowsill or, worse yet, on a hot sidewalk in front of a supermarket can be watered less often without subjecting them to water stress. Difficult-to-water hanging baskets will be much easier to care for.

Interior plantscapers are using super absorbent-amended soil mixes to reduce their watering schedules on indoor plantings, and with a little bit of experimentation, a vacationing house plant enthusiast or patio gardener could have his vacation and still keep his peace of mind knowing his plants are all well watered. Indoors, plants grown in amended soil may need water as seldom as once a month, and wick watered plants or those grown in self watering planters will need water even less often. Either repot house plants with amended soil or mix some super absorbent with

water to form a loose gel and plant plugs of it directly in the pot. Plant roots are able to extract water directly from the gel, and rooted cuttings actually can be kept in super absorbent gel alone. The roots act as a check valve and allow water to enter the root but not leave it. Do not try to root cuttings in this manner, however, since, in the absence of roots, the gel can pull water out of the plants. You can grow unrooted cuttings in a soil amended with super absorbent.

Watering schedules will take some experimentation and will vary according to the size and type of the container as well as the plants involved. Absorbent Industries (see the source list at the end of this article for the address) has a special formulation of super absorbent designed for indoor use, AquaStor 450, now called AquaStor 600se. Mix it at a rate of one teaspoon per quart of growing medium or five pounds per cubic yard. Super absorbents can be added to soil along with fertilizer and any other soil amendments you

wish to add, and the soil can be steam sterilized.

Outdoors use a formulation designed for nursery or landscape use (for example AquaStor 900, now called AquaStor 1000) and apply it according to the package directions. When transplanting vegetable sets or bedding plants grown in amended soil, plant any excess growing medium along with the transplants, because the absorbents will continue to store water for plants in the garden. The treated soil will help to lessen transplant shock since it will keep a supply of readily available water near the young plants.

Seeds and Seedlings

To improve the germination percentage of seed and the performance and strength of seedlings add super absorbent to the germinating medium, or work a small amount of the powder into the seed bed before planting (consult the package for the proper amount). These absorbents even can be broadcast over the ground and then worked into the surface of the soil when seeding a

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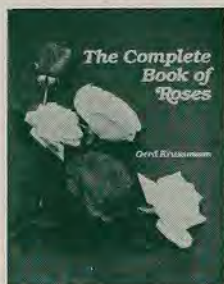
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lawn. Moisten them thoroughly, and they will hold a layer of water next to the seeds, which will be available to the seedlings as soon as the root tips emerge. Agriculturists actually are experimenting with encasing different types of crop seed in a pellet of super absorbent either by itself or in combination with fungicide, fertilizer or other ingredients. Coated seed has been proved to outperform un-coated seed in a number of different field trials. Perhaps eventually some flower or vegetable seed for the home gardener will come pre-coated with a super absorbent.

Landscape contractors have found that super absorbents will act as a binder when mixed with seed, mulch and water, holding the seed in contact with the mulch and water. Seed sown in this manner exhibit higher germination and survival rates. The technique, called hydrolic mulching, even has been effective on slopes where erosion is a problem, since the seedlings get a faster, stronger start.

Transplanting

Super absorbents can be used in a variety of ways to help lessen transplant shock and improve the strength and performance of many kinds of transplants, including large trees, balled and burlapped or container-grown nursery stock, bare root trees, seedlings, shrubs and sod.

When preparing the hole for a container-grown or balled and burlapped tree or shrub work some super absorbent into the hole along with the bone meal and any other soil amendments you are planning to add. Once the tree or shrub is planted and thoroughly watered the absorbent will hold a supply of water right at the root zone for the newly transplanted plant. One of the important characteristics of these new absorbents, especially in this case, is that they trap capillary water, which is the water that ordinarily runs right through the large pores in the soil and is lost. As a result, water that would be lost is trapped in the root zone, and water waste due to run off is greatly reduced. Be sure to work the absorbent into the soil. If you merely line the hole with the powder, it might create a gel-like ball around the plant and thus reduce aeration.

Bare-root plants can be dipped in a thin slurry of super absorbent and water to reduce transplant shock and improve performance. This treatment also can be used to store water on plant roots during shipping, where it will reduce damage caused by drying out and will weigh less than ordinary growing medium. Even seedlings being transplanted will benefit from a dipping, since it will help prevent their tender roots from drying out during and after transplanting. Make sure the mixture is thin enough so that you can dip the roots into it without damaging them, and that it clings to the roots without completely covering them.

Super absorbents also can be used to reduce transplant shock and improve the performance of a newly sodded lawn. Work the absorbent into the surface of the soil, lay the sod and water thoroughly. Again, the absorbent will hold water in the root zone and trap capillary water that ordinarily would be lost. This can be an especially important benefit in areas with sandy soils, in arid parts of the country where water is especially precious and if there is a sudden stretch of hot, dry weather after sodding. The sod will get a faster start and the roots will grow quickly down into the soil, thus minimizing the danger of damage due to drying out.

These are only a few of the many uses for super absorbents, and scientists, horticulturists, landscape contractors and home gardeners undoubtedly will discover more as these products become better known.

Super Absorbents are available under several different brand names, including AquaStor[™], Terra-Sorb[®], Super Slurper, Viterra 2 and Perma-sorb. Thus far, most of these products are available only to nurserymen and other professionals, but homeowners can purchase both formulations of AquaStor from Absorbent Industries, Inc., 611 Jefferson Street, Morton, IL 61550. Some of the super absorbents also may be available at local nurseries and garden centers, and plans are underway to market Terra-Sorb[®] through these retail markets in the future.

—Barbara W. Ellis

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1982 Awards Nominations Sought

Members are invited to recommend candidates for the Society's 1982 awards. The Awards and Citations Committee will be meeting soon to nominate individuals and would welcome suggestions from the general membership of candidates for the Liberty Hyde Bailey Medal, the G.B. Gunlogson Award and the seven Citation awards.

The Liberty Hyde Bailey Medal is the highest award the Society can bestow on an individual. Past recipients include such notable horticulturists as Dr. Donald Wyman, author of *Wyman's Gardening Encyclopedia* and consultant to *American Horticulturist*; the late David Burpee, president of W. Atlee Burpee Company, Inc.; and Alfred Byrd Graf, author of *Exotica* and the *Exotic Plant Manual*. To qualify for this prestigious award an individual must be a resident of the North American Continent and must have made significant contributions in at least three of the following areas of horticultural activity: teaching, research, writing, plant exploration, administration, art, business and leadership.

The G.B. Gunlogson Award is given for the creative use of new technology to make home gardening

more productive and enjoyable. A recent recipient, Dr. Calvin Lamborn, was the developer of the 'Sugar Snap' pea, the most important breakthrough in vegetable breeding in years.

Citations are awarded to individuals, firms or institutions who have accomplished something unusual and of national importance in one of the following seven aspects of

horticulture: scientific, commercial, professional, amateur, teaching, landscape architecture and horticultural writing.

If you would like to suggest nominations for any of these categories, please forward the name(s) of your nominee(s) as well as pertinent biographical information to Mrs. John Maury, Chairman, in care of the Society, no later than May 31.

Don't Miss Our Spring Symposium

This year's Spring Symposium in Washington, D.C. promises to be something special. Participants will enjoy visits to both public and private gardens in Virginia and Maryland, outstanding lectures, good company, our Spring Symposium Banquet and a wine and cheese reception here at our own River Farm on the banks of the Potomac. If you haven't signed up already, do so today. Use the registration form in the January 1982 issue of *American Horticulturist* news or write or call Dorothy Sowerby at the Society.

This year's **Post Symposium Tour**, Gardens and Mansions of the Mid-Atlantic States, also promises to be very interesting. Scheduled from

April 26 through May 6, this exciting tour will take you on an in-depth look at the museums, monuments and gardens, both public and private, of the Nation's Capital. Also scheduled are visits to the United States Department of Agriculture, Agricultural Research Center in Beltsville, Maryland, and a four-day stay in one of America's richest gardening areas, the Brandywine Valley. Here participants will visit Longwood Gardens, Winterthur, the Morris Arboretum, the Henry Foundation for Horticultural Research and also tour historic Philadelphia. For more information on this exciting tour call or write Dorothy Sowerby at the Society.