

The American GARDENER®

The Magazine of the American Horticultural Society September / October 2011

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Shade

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Seed-Saving
Techniques

Autumn
Bulbs

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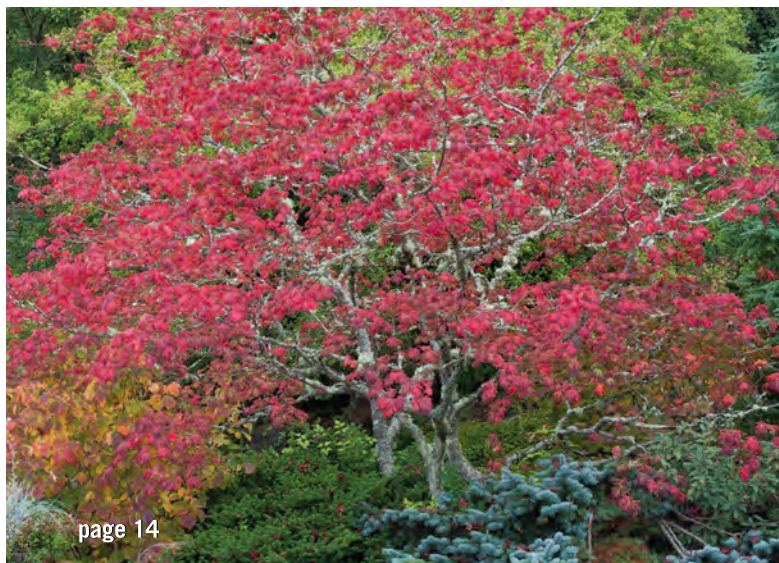
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Photograph by Susan A. Roth

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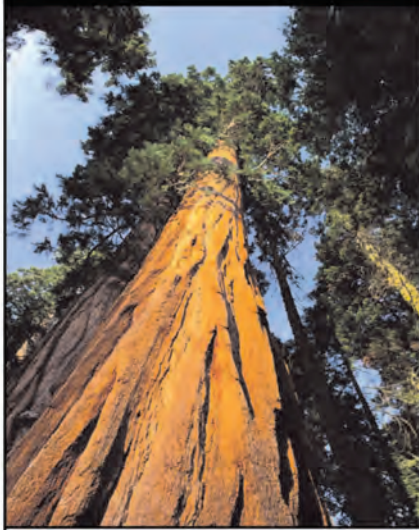
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handsome
has a
whole other
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NOTES FROM RIVER FARM

AUTUMN ALWAYS brings a kaleidoscope of color to River Farm, as leaves begin turning orange, yellow, and red, complemented by late-blooming perennials. The cooler weather makes this a particularly delightful time of year to wander through the grounds, enjoying the different gardens, exploring the wildlife-rich meadow, sitting beneath the broad canopy of our National Champion Osage orange tree, and admiring the view of the Potomac River framed by trees in brilliant colors.

Each year, River Farm welcomes visitors from around the world. If you have yet to do so, we encourage you to visit our beautiful 25-acre headquarters, no matter where you live. You might discover a plant or design scheme that would be perfect in your own garden. Or maybe our Children's Garden will inspire you to start a school garden in your area, or our meadow will motivate you to create a wildlife habitat in your community. We are continually adding new plantings, signage, and other features, so we hope you will return often to see what we've been up to.

River Farm also provides the perfect setting for important events such as our annual gala, which takes place on September 24. With a theme of "Growing Inspirations," the gala is both an opportunity to raise funds in support of the Society's mission and also a celebration of the special treasure that is River Farm. Concurrently, we will offer an online auction of unique garden tours and other items (for more details, visit www.ahs.org/auction).

On October 6, we are also excited to host a reception and tour for community leaders, horticulturists, and urban beautification enthusiasts from across the country as part of this year's America In Bloom Symposium and Awards program. America In Bloom celebrates its 10th anniversary this year, and our hats are off to this national organization for its influential role in fostering grassroots beautification efforts in cities throughout the United States. Anyone interested in becoming involved would do well to attend the symposium (for more on this, see page 9).

Even if a visit to River Farm isn't in your immediate plans, all you have to do is turn the page to find new ideas for your garden. With the help of regional experts, Linda Askey identifies some overused small ornamental trees and offers recommendations for less-common alternatives. You'll also enjoy an article on fall-blooming bulbs by Nancy Goodwin, an update on how the Society's annual youth gardening symposium is influencing the children's gardening movement, recommendations for gardening in dry shade from Graham Rice, and much more. Whatever your fall garden project may be, we hope you enjoy the season and this issue of *The American Gardener*.

Harry Risetto, Chair, AHS Board of Directors
Tom Underwood, Executive Director



River Farm is bright with color in autumn.



CONTACTS FOR AHS PROGRAMS, MEMBERSHIP BENEFITS & DEPARTMENTS

For general information about your membership, call (800) 777-7931. Send change of address notifications to our membership department at 7931 East Boulevard Drive, Alexandria, VA 22308. If your magazine is lost or damaged in the mail, call the number above for a replacement. Requests for membership information and change of address notification can also be e-mailed to membership@ahs.org.

THE AMERICAN GARDENER To submit a letter to the editor of *The American Gardener*, write to The American Gardener, 7931 East Boulevard Drive, Alexandria, VA 22308, or send an e-mail to editor@ahs.org.

DEVELOPMENT To make a gift to the American Horticultural Society, or for information about a donation you have already made, call (800) 777-7931 ext. 127 or send an e-mail to development@ahs.org.

E-NEWSLETTER To sign up for our monthly e-newsletter, visit www.ahs.org.

INTERNSHIP PROGRAM The AHS offers internships in communications, horticulture, and youth programs. For information, send an e-mail to education@ahs.org. Information and application forms can also be found in the River Farm area of www.ahs.org.

NATIONAL CHILDREN & YOUTH GARDEN SYMPOSIUM For information about the Society's annual National Children & Youth Garden Symposium, call (800) 777-7931 ext. 132 or visit the Youth Gardening section of www.ahs.org.

RECIPROCAL ADMISSIONS PROGRAM The AHS Reciprocal Admissions Program offers members free admission and other discounts to more than 250 botanical gardens and other horticultural destinations throughout North America. A list of participating gardens can be found in the Membership area of www.ahs.org. For more information, call (800) 777-7931 ext. 119.

RIVER FARM The AHS headquarters at River Farm is open 9 a.m. to 5 p.m. weekdays year-round (except Federal holidays), and 9 a.m. to 1 p.m. Saturdays from April through September. Admission is free. For information about events, rentals, and directions, visit the River Farm section of www.ahs.org.

TRAVEL STUDY PROGRAM Visit spectacular private and public gardens around the world through the Society's acclaimed Travel Study Program. For information about upcoming trips, call (800) 627-6621, send an e-mail to ahs@macnairtravel.com, or visit the Travel Study section of www.ahs.org.

WEBSITE: www.ahs.org The AHS website is a valuable source of information about the Society's programs and activities. To access the members-only section of the website, the user name is **garden** and the password is **ahs2011**.

MEMBERS' FORUM

STATUESQUE AMARANTH

I just had to send in this photograph of *Amaranthus tricolor* 'Cinco de Mayo', which I grew from seeds that I got through the AHS Seed Exchange earlier this year. The plant is a showstopper; people driving by stop to ask me what it is. It was only



supposed to grow three to four feet tall but it is at least six feet now and still growing. Thanks so much for having this program. Some of my best plants have come from the seed exchange.

*Lu Anne Copeland
Chesapeake, Virginia*

Editor's note: For information on contributing seeds to the 2012 AHS Seed Exchange, look for the removable form attached to page 9 of this issue.

PLEASE WRITE US! Address letters to Editor, *The American Gardener*, 7931 East Boulevard Drive, Alexandria, VA 22308. Send e-mails to editor@ahs.org (note Letter to Editor in subject line). Letters we print may be edited for length and clarity.



CORRECTION

Thank you for including the news item about blueberries in "Gardener's Notebook" (July/August 2011). These delicious and healthful fruits were first cultivated by Elizabeth White and Frederick Coville of the USDA at Historic Whitesbog Village, Browns Mills, New Jersey. However, I

wanted to point out that the names of the two researchers in the photo you published [shown on the left] were reversed in the caption. James Polaschock is on the left and Mark Ehlenfeldt (whose name was misspelled) is on the right. Ehlenfeldt is the treasurer and former president of Whitesbog Preservation Trust, where we endeavor to preserve this important agricultural history. I encourage your readers to visit us—on the first Saturday of each month they can tour the village and learn how blueberry agriculture began in 1911. Visit www.whitesbog.org for more information.

*Ellen Terry
Whitesbog Preservation Trust
Browns Mills, New Jersey*

Editor's note: If you would like to learn more about Elizabeth White, Frederick Coville, and the Whitesbog Preservation Trust, read "Beauty in the Barrens," an article by Rick Darke that was published in the May/June 2000 issue of *The American Gardener*, which can also be found online at www.theamericangardener.net.

Do You Need to Have a Garden to be a Gardener?

We asked this question on the American Horticultural Society Facebook page recently, and here are some of the responses:

Steven Mullen: Yes, otherwise you are a gardener-at-heart.

Ann Amato-Buttitta: Not at all! My 90-year-old grandmother can no longer garden, but I would never suggest taking that identity away from her, or from anyone else for that matter.

Marty Schlipf: You *are* a garden.

Beth Parsons: You at least need access to a garden. The most frustrating years of my life were when I had a degree in horticulture, but no place of my own to practice. Like being a doctor without patients.

Kathy Parrent: It depends on how you define garden, I'd say. Years ago I grew wildflowers in a plastic garbage basket on the fire escape of our apartment in Brooklyn. I considered it my garden!

Sandy Betts: Is a painter no longer a painter if not actively painting? I don't think you can "un-become" something like a gardener.



Join the conversation!

Go to www.facebook.com/americanhorticulturalsociety and click "Like."



THE AMERICAN HORTICULTURAL SOCIETY TRAVEL STUDY PROGRAM 2011 TOURS



Castles and Gardens of Bohemia and Moravia September 25–October 6, 2011 with AHS Host Kurt Bluemel and Tour Escort Harriet Landseer of Specialtours

■ We begin this trip to the Czech Republic in the capital city of Prague, renowned for its castles and cathedrals. From there we will venture to the historic and picturesque regions of Bohemia and Moravia. Experience a wealth of gardens in styles ranging from formal Italianate, Renaissance, and Baroque to Neo-classical and modern—including several 20th-century gardens created by visionary designers.



COMING SOON! 2012 Travel Destinations

The AHS's Travel Study Program will feature three exciting destinations in 2012. Start planning now for next year's trips!

Bold Colors and Exuberant Flowers: San Diego County

March 21–25, 2012

With AHS Host Evelyn Alemanni and AHS Tour Escort Maren Seubert

Midsummer Gardens and Castles of Sweden

June 26–July 6, 2012

With AHS Host John Floyd and Tour Escort Antonia Lloyd Owen of Specialtours

Andalusian Heritage and Gardens: Seville, Cordoba, and Granada

October 26–November 5, 2012

With AHS Host Katy Moss Warner and Tour Escort Susie Orso of Specialtours

Full travel itineraries will be available on www.ahs.org this fall.

For more information about upcoming tours in the AHS Travel Study Program, please contact our travel partner,
MacNair Travel: • E-mail: ahs@macnairtravel.com • Call: (866) 627-6621



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EDITOR

David J. Ellis

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Mary Yee

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Viveka Neveln

EDITORIAL INTERN

Helen Thompson

CONTRIBUTING EDITOR

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CONTACT US

The American Gardener

7931 East Boulevard Drive

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EDITORIAL

E-MAIL: editor@ahs.org

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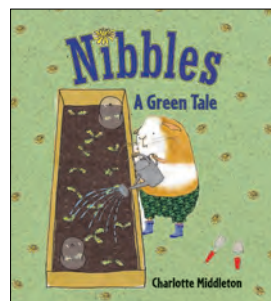
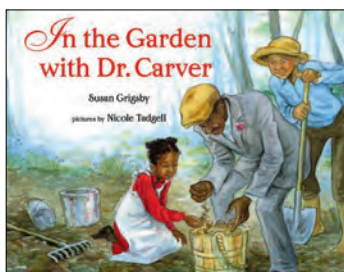
News from the AHS

September / October 2011

PROGRAMS • EVENTS • ANNOUNCEMENTS

AWARD-WINNING GARDEN-THEMED CHILDREN'S BOOKS

SINCE 2005, one of the highlights of the American Horticultural Society's National Children & Youth Gardening Symposium is the unveiling of the "Growing Good Kids—Excellence in Children's Literature" Awards. This awards program, jointly administered by the AHS and the National Junior Master Gardener Program, recognizes children's books that tell imaginative stories while encouraging young readers to appreciate plants, gardening, and the environment.



The 2011 winners are: *In the Garden with Dr. Carver* by **Susan Grigsby** with illustrations by **Nicole Tadgell**, *Nibbles: A Green Tale* by **Charlotte Middleton**, and *Water, Weed, and Wait* by **Edith Hope Fine** and **Angela Demos Halpin**.

"The nominated titles are evaluated on the power of the story and illustrations to engage elementary school-aged kids and younger," says **Randy Seagraves**, national curriculum coordinator for the National Junior Master Gardeners Program. "This year's winners have such appeal that adults would enjoy these stories as well."

Nominations for next year's awards will be accepted through April 23, 2012. To learn more about this awards program, go to www.jmgkids.org.

TWO AHS BOARD OF DIRECTORS MEMBERS PASS AWAY

IT IS WITH great sadness that we report the deaths of two American Horticultural Society Board members: **Don E. Riddle, Jr.** of Annapolis, Maryland, and **Margaret B. Kulp** of Louisville, Kentucky. Both had been actively involved with the AHS, participating in the Society's events and programs and serving on advisory committees that have helped shape the Society's current mission.

Riddle, who died in June, founded one of the Washington, D.C., metropolitan area's most popular independent garden centers, Homestead Gardens in Davidsonville, Maryland. He was also one of the founders and leaders of the national trade group Garden Centers of America. "Don was not only a well respected industry leader, but also an enthusiastic and generous supporter of the AHS," says AHS Executive Director **Tom Underwood**. "From hosting our intern field trips to providing plants and holiday décor for our River Farm headquarters, he was always ready and willing to help."

Kulp, who also died in June, was well known for her support of public gardens and horticultural organizations around the country. She helped found Yew Dell Gardens in Crestwood, Kentucky, and served as a board member for the Coastal Maine Botanical Garden in Boothbay, Maine, among others. Kulp also shared her passion for plants through her floral design business, Wild Holly Studios. "Margaret's special interest in public gardens and floral art was invaluable to promoting our mission," says AHS Board Chairman **Harry Risetto**. "We will long remember the many contributions both she and Don made to this organization and American gardening."

AMERICA IN BLOOM AT RIVER FARM

FOR AMERICA IN BLOOM'S 10th Annual Symposium and Awards Program taking place October 6 to 8 in Washington, D. C., River Farm will host an awards ceremony that will kick off the event. The AHS's headquarters along the banks of the Potomac River will provide the perfect setting for symposium participants to both gather new ideas and celebrate beautiful gardens.

"Urban beautification efforts often rely on tough but colorful plantings," says **Tom Underwood**. "At River Farm this year, we are featuring a variety of annuals that fit this bill in order to showcase possibilities for our guests."

For more details on the event, visit www.americainbloom.org.

DR. CATHEY DAY CELEBRATION

AN AVID BELIEVER in the power of plants to improve lives, the late **Dr. H. Marc Cathey** was known for his catchphrase: "Green is the color of hope." To continue his legacy, each year the AHS observes the birthday of its former president in October to highlight what he most cherished. This year's festivities will honor his efforts to encourage children—particularly his four grandchildren whom he adored—to develop a love of plants.

On October 22, the AHS will host "A Celebration of Grandparents" for Dr. Cathey Day from 9 a.m. to 1 p.m. at its River Farm headquarters. Sponsored by **Patch.com**, the event will offer a range of autumn-themed activities for all ages.

Photo Contest Winner



This photograph of funky-looking fungi by Richard States of Cortland, Ohio, was both the "Best of Show" winner and the Sweepstakes winner of the Gardeners of America/Men's Garden Clubs of America (TGOA/MGCA) 2011 Photography Competition. Through a special partnership between the organizations, AHS members may participate in this annual contest. The winning images are featured in upcoming TGOA/MGCA calendars. For details, visit www.tgoa-mgca.org.

Gifts of Note

In addition to vital support through membership dues, the American Horticultural Society relies on grants, bequests, and other gifts to support its programs. We would like to thank the following donors for gifts received between June 1 and July 31, 2011.

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In honor of Arabella S. Dane
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In memory of Margaret Kulp
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*In memory of two Midwest gardeners,
Marjorie Galer and Marie Shafer*
Ms. Anne Galer

In honor of my late wife, Kendall Mudry
Mr. Michael Mudry

In memory of Janice Mary Prescott
Ms. Toni Smith

In memory of Don E. Riddle, Jr.
AHS Board of Directors and Staff

*In honor of Mr. Charles Henry "Bee"
Smith, Jr.'s 90th Birthday*
Jan and Guy Beakley
Mr. and Mrs. Robert L. Kaplan

In memory of Elizabeth H. West
Ms. Susanne T. West

*In memoriam

If you would like to support the American Horticultural Society as part of your estate planning, as a tribute to a loved one, or as part of your annual charitable giving plan, please contact development@ahs.org or call (703) 768-5700 ext. 123.

Seed Exchange Deadline Reminder

Don't forget: The deadline to send in seeds for the 2012 members-only Seed Exchange is **November 1**. This is a great way to share your favorite plants with other AHS members across the country. And of course, those who donate seeds get first pick from all available seeds (the 2012 list will be posted on the AHS website in mid-January). For more details, please turn to the insert between pages 8 and 9 of this magazine.

NO CHILD LEFT INSIDE ACT NEEDS YOUR SUPPORT

ON JULY 19th, Senator **Jack Reed** of Rhode Island and Congressman **Paul Sarbanes** of Maryland introduced the No Child Left Inside Act, a bill that would provide financial and other assistance to states bolstering environmental education. The bill is a product of considerable efforts by the No Child Left Inside Coalition (NCLIC), a growing national alliance of more than 2,000 organizations—including the AHS—to promote curricula that educate students about the environment and the natural world, including outdoor classroom activities and school gardens.

If you would like to support the No Child Left Inside Act, information on how to get involved is available on the NCLIC website (www.nclicoalition.org).

News written by Editorial Intern Helen Thompson.



AHS EVENTS AND PROGRAMS

2011 CALENDAR

Mark your calendar for these upcoming events that are sponsored or co-sponsored by the AHS. Visit www.ahs.org or call (703) 768-5700 for more information.

SEPT. 24. **AHS Annual Gala.** River Farm, Alexandria, Virginia.

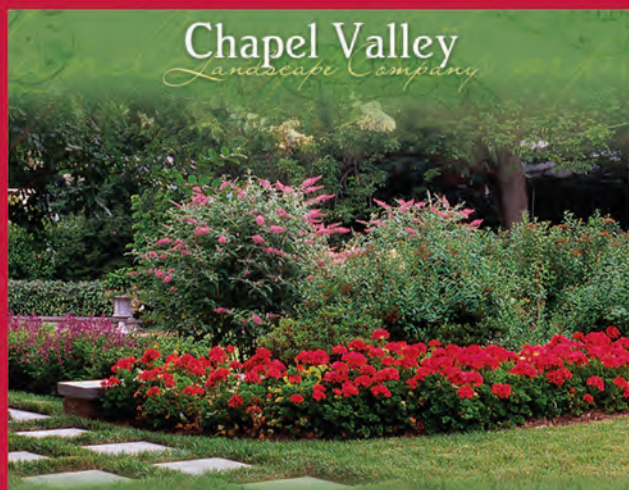
SEPT. 25–OCT. 6. **Castles and Gardens of Bohemia and Moravia.** AHS Travel Study Program. Czech Republic.

OCT. 6–8. **America in Bloom Symposium and Awards Program.** Washington, D.C.

OCT. 22. **Dr. Cathey Day—A Celebration of Grandparents.** River Farm, Alexandria, Virginia.

DEC. 1–23. **Holiday Trees Display.** River Farm, Alexandria, Virginia.

DEC. 8. **AHS Holiday Reception.** River Farm, Alexandria, Virginia.



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Making America a Nation of Gardeners, a Land of Gardens

AHS MEMBERS MAKING A DIFFERENCE: Dawn Denton

by Helen Thompson

LIKE THE main character in her second and latest children's book, *Oliver the Toad*, Dawn Denton started gardening at an early age. In fact, she can't remember a time when gardening was not a part of her life. An AHS member since 2002, Denton says, "My first garden memory is helping my mom cut peonies when I was five or six years old."

GARDEN REVIVAL

After attending college in Siloam Springs, Arkansas, Denton started working at a local elementary school and taught fourth grade for nine years. In 2001, she decided to leave teaching to pursue her love of the outdoors through a job with the Siloam Springs department of parks and recreation. Enjoying one of the park areas one day, Denton noticed a long neglected garden formerly maintained by the city. After a little digging into city records, she discovered that this garden, as well as several other garden areas, had been established around 1907. "The majority were overgrown and in bad shape," Denton recalls. "I thought it would be really great to bring these gardens back to life."

With the help of co-workers, Denton mobilized a network of volunteers, and eventually hundreds of people helped to



Dawn Denton, at a book signing, above, hopes to educate kids about nature and gardening through her stories.

restore and maintain various historic and new gardens around Siloam Springs. Denton was especially passionate about creating a garden in honor of local daylily breeder Pauline Henry. Henry, who died in 2000, bred hundreds of daylily cultivars over her 37-year career, and 490 Siloam varieties are currently registered with the American Hemerocallis Society. "I wanted to see her legacy memorialized in a public setting," says Denton. So, she and a crew

of volunteers created a garden near the local library to showcase Henry's daylily and iris collections.

COLLABORATIVE GARDEN DESIGN

As Denton began organizing these gardening projects in her community, she joined the American Horticultural Society because "I was trying to see what else we could be doing." Over the years, she says, the AHS has been a source of inspiration and information for a variety of her horticultural projects.

For example, Denton's AHS membership keeps her connected to fresh ideas for her landscape design business, which she started in 2007 after friends and volunteers began asking her for advice on their own gardens. Her business philosophy revolves around making clients part of the design process, so that "when we leave, they feel like it's their garden," she explains. She uses her own garden to showcase plants that she likes to feature in her designs.

EDUCATING YOUNG GARDENERS

The AHS's emphasis on youth gardening also inspired Denton to tap into her teaching background to write a children's book series called "Guests in the Garden." In 2009, she published the first book, *Ruby and Rocket*, a tale of two rambunctious hummingbird siblings. *Oliver the Toad*, which came out this past spring, focuses on the role that toads play in naturally controlling pests in the garden. She is currently working on another book, due out next spring, called *Betsy the Bumblebee*. The main character longs to be a butterfly but has a change of heart when she realizes her importance in the garden. Denton hopes these books "will help kids understand the whole gardening environment," she says.

Whatever horticultural project Denton is working on—from writing books to designing gardens—her goal is to help people see "what plants do to make our lives and communities more beautiful."



The Pauline Henry Memorial Garden, above, is one of several beautification projects Dawn Denton has spearheaded in her Siloam Springs, Arkansas, community.

Helen Thompson is an editorial intern with The American Gardener.



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Making America a Nation of Gardeners, a Land of Gardens



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Out-of-the-Ordinary

Choosing a small ornamental tree for your garden? Regional experts offer some good choices to help you avoid the overexposed or unreliable.

SMALL ORNAMENTAL trees—and by small I mean those with a mature size in the range of 20 to 30 feet tall and wide—are key elements of garden design. They help give a garden its human scale by complementing and softening the architecture of a home, catching the eye to guide our path, framing a distant view, or cloaking unsightly features. Many offer spring or summer floral displays as well as glowing fall foliage.

And given the current zeal for multitasking, these trees are expected to bring a lot to the table, including adaptability to different sites, disease and pest resistance, appeal to wildlife, and visual interest in at least two—if not three or four—seasons. Some even contribute to the edible landscape, earning extra credit.

Clearly, good things come in small packages, but sometimes there can be too much of a good thing. On a national level, certain trees have become ubiqui-

tous. “Among the overused small trees, redbuds, dogwoods, magnolias, and cherries dominate,” says Michael Dirr, a retired horticulture professor at the University of Georgia and author of the *Manual of Woody Landscape Plants* (see “Resources,” page 19). For a list of Dirr’s top small tree recommendations, click on the web special linked to this article on the AHS website (www.ahs.org).

With the current ravages of the emerald ash borer fresh in their minds—not



At the Elisabeth C. Miller Botanical Garden in Seattle, Washington, *Acer japonicum* 'Aconitifolium' provides a fiery contrast to the more subdued hues of its coniferous companions in autumn. A slow grower, this maple develops into a large shrub or small tree.

Small Trees

BY LINDA ASKEY

to mention the cautionary lessons of Dutch elm disease and chestnut blight—horticulturists get concerned when they see any woody plant being used too frequently in the landscape.

“It’s never a good idea to plant the same few trees,” says Greg Grant, research associate at SFA Gardens of Stephen F. Austin State University in Nacogdoches, Texas. “Not only does it get monotonous, more importantly it can have disastrous results if a host-specific disease or insect comes along.”

And some of the old standby ornamental trees are not as reliable as they used to be. One example is the flowering dogwood (*Cornus florida*), an eastern woodland native that is no longer recommended for sunny, dry garden sites because of its susceptibility to the fungal disease anthracnose. Another is the ‘Bradford’ pear (*Pyrus calleryana*), which is known to start losing limbs after 15 years or so and self-sows prolifically (see sidebar, right).

“Lots of beginning gardeners are afraid to plant something they are not familiar with,” notes Grant. “And of course it’s easier to buy things that are grown and sold *en masse*.” These may be perfectly good trees, but when there are so many other great options, it is worth considering some distinctive alternatives. These include new species as well as hybrids or cultivars of established species.

RECOGNIZING REGIONAL DIFFERENCES

To find out what small trees are considered overused or no longer reliable in different areas of the country—and to get recommendations for potential replacements—I spoke with experts in several regions. The first thing that became evident was that when it comes to plants, one size definitely does not fit all. Factors such as soil moisture, soil pH, wind, sun intensity, temperature extremes, and the duration of heat and cold determine whether a plant thrives or not. Plants that are good citizens in one area may be a problem in another.

In a few cases, trees judged to be overused in one region were recommended in others, especially when it comes to new varieties of the old favorites.

FLORIDA AND THE GULF COAST “I think the most overused tree in the last 15 to 20 years is the Drake elm (*Ulmus parvifolia* ‘Drake’),” says Gil Nelson, a botanist, author, and consultant based in Thomasville, Georgia. “It’s in every parking lot and road-

side you can imagine. It’s fast-growing, has a symmetrical, rounded crown, and interesting bark.” But that’s where his appreciation ends. “They produce thousands of fruit and are messy.” In its place, Nelson would like to see more plantings of natives such as fringe tree (*Chionanthus virginicus*) and hawthorns such as *Crataegus spathulata* and *C. marshallii*.

Another plant Nelson feels could do with a little less exposure is crape myrtle

RISE AND FALL OF THE ‘BRADFORD’ PEAR

Certain trees become overused and overplanted because they are (or were at one time) highly ornamental plants that were easy for nurseries to propagate and grow. Sometimes developers and landscape companies help establish popularity trends by relying on a short list of tree selections when landscaping housing developments.

Once in a while, plants that become standards have hidden flaws that take time to reveal themselves. The classic example of this is the ‘Bradford’ pear (*Pyrus calleryana* ‘Bradford’), which became one of America’s most popular garden and street trees soon

after its introduction in 1963. It offered a reliable profusion of white flowers in spring, flaming fall color, relatively modest stature, fast growth, and tolerance of poor growing conditions, not to mention ease of nursery production. It took a decade or so for horticulturists and arborists to discover that the beautiful spring-flowering tree generally starts self-destructing at about 10 to 20 years old. The narrow angle at which branches join the main trunk makes major branches particularly prone to breaking and splitting, especially when exposed to high winds or ice storms.

Another strike against ‘Bradford’ is that although it was initially believed to be sterile, “its fertility improved dramatically as subsequently released *Pyrus calleryana* cultivars began to cross-pollinate it,” says Phil Normandy, plant collections manager at Brookside Gardens in Wheaton, Maryland. Over time, and with the help of liberal distribution by birds, seedlings sprouted in natural areas and along highways throughout the Northeast and Midwest.

—L.A.



A weak union between branches and trunk makes ‘Bradford’ pears susceptible to damage from strong winds and freezing rain.

(*Lagerstroemia* spp.). “They are used a lot and they reseed some,” he says. To replace them, he suggests chalkbark maple (*Acer leucoderme*). “It’s a dainty, attractive tree that looks like a sugar maple but doesn’t get as big. Its orangy-salmon fall color is just fantastic.”

Robert Bowden, director of the Harry P. Leu Gardens in Orlando, Florida, says the top choice on his list of underused small trees is the gold medallion tree (*Cassia leptophylla*). “It is out of this world, like a homing beacon in April for about three weeks,” he says. “The huge flower heads have about 50 flowers in them, and they are about 12 to 14 inches across at the tip of every branch. It likes full sun and is absolutely trouble free.”

SOUTHEAST Jamie Blackburn, curator of Woodland Gardens at the Atlanta Botanical Garden in Georgia, was one of several regional experts who mentioned fringe tree (*Chionanthus virginicus*), an eastern native, as an overlooked small tree option. “It’s a durable, drought-tolerant native with frilly white spring flowers,” says Blackburn. For small gardens, he likes the selection Prodigy® for its “dark green foliage and compact habit.”

Another drought-tolerant option Blackburn recommends is *Crataegus viridis* ‘Winter King,’ which he describes as a “four-season tree with spring flowers, persistent fruit, and nice bark. It has some thorns, but not as bad as other hawthorns. They are tough as nails and definitely underused.”

When it comes to flowering cherries, Blackburn nominates bell-flowered or Taiwan cherry (*Prunus campanulata*) as one of the best choices for southern gardens. He includes its hybrid offspring ‘Okame’ and another heat tolerant substitute, Higan cherry (*P. ×subhirtella*) ‘Autumnalis Rosea’. “In Atlanta, we’ve had them bloom in December, even before *Prunus mume*,” he notes.

Mark Wourms, executive director of Bernheim Arboretum and Research Forest in Clermont, Kentucky, likes serviceberries (*Amelanchier* spp.), including cultivars of *A. ×grandiflora* and Allegheny serviceberry (*A. laevis*). He particularly recommends the latter because it’s “smaller than some of the other species, and produces fruit that is enjoyed by birds.”



Above: ‘Winter King’ hawthorn has white spring flowers and red fall fruits that persist into winter. Left: *Amelanchier* ×*grandiflora* Autumn Brilliance™ shows off its fall foliage and attractive gray bark.

MID-ATLANTIC Although he acknowledges that redbuds (*Cercis canadensis*) are “bread and butter plants,” Dwayne Jones, director of parks and recreation with the city of Waynesboro, Virginia, is keen on

the new wave of redbud selections entering the market.

He credits Dennis Werner, a plant breeder at North Carolina State University, with picking up where ‘Forest Pansy’ redbud left off and introducing exciting new cultivars such as ‘Merlot’, ‘Ruby Falls’, and ‘Whitewater’. For hot climates, Jones notes that ‘Merlot’ “is an improved ‘Forest Pansy’ that stays darker longer.”

Despite flowering dogwood’s well publicized struggles with the fungal disease anthracnose, it’s too early to write off this lovely East Coast native tree, says Phil Normandy, plant collections manager at Brookside Gardens in Wheaton, Maryland. His advice is to continue planting the flowering dogwood (*Cornus florida*) in partly shaded sites, but to use the anthracnose-resistant Rutgers University hybrid dogwoods (*C. ×rutgersensis*) such as the



Kousa dogwoods put on a spectacular floral display in early June in the mid-Atlantic.

Stellar Series in sunny, hot sites, especially in urban settings. Another alternative for sunny sites is Kousa dogwood (*C. kousa*), which blooms later than flowering dogwood and is not affected by anthracnose and less susceptible to borers.

Normandy says another tree group ripe for updating in suburban landscapes is deciduous magnolias. In place of the gangly saucer magnolias (*Magnolia ×soulangeana*), whose pinkish-purple flowers are often damaged by early frosts, Nor-

mandy recommends yellow-flowered hybrid selections such as 'Elizabeth' (30 to 50 feet, fragrant flowers) and 'Butterflies' (15 to 25 feet).

NEW ENGLAND Michael Dosmann, curator of living collections at the Arnold Arboretum in Jamaica Plain, Massachusetts, is a proponent of fringe trees, especially Chinese fringe tree (*Chionanthus retusus*), which he describes as "underused, underappreciated, and pretty tough."

Dosmann also puts in a good word for ironwood (*Ostrya virginiana*) because of its "great fall color and textured, flaky bark. For a smaller site and for people who want a native plant, it's great."

Another plant on his list is *Heptacodium miconioides*. "It flowers in late summer, and in fall the fruit is amazing," says Dosmann. "Flowers are white, and then the calyces are a wine-mauve color behind the purple fruits. And it has flaky, bone-white bark."

"If you are looking for an elegant smallish native tree with year-round appeal, you cannot do better than sourwood (*Oxydendrum arboreum*)," says New Hampshire-based garden designer and author Penelope O'Sullivan. "In spring, long

AT A GLANCE: RECOMMENDATIONS FOR SMALL TREES

Plant Name	Height/Spread (feet)	Notable Characteristics	Origin	USDA Hardiness, AHS Heat Zones
<i>Acacia podalyriifolia</i> (pearl acacia)	15–20/15	evergreen with silvery gray leaves, fluffy yellow early-spring flowers	Australia	9–11, 12–8
<i>Acer japonicum</i> 'Aconitifolium' (cutleaf fullmoon maple)	10–20/10–20	deeply lobed leaves turn red in fall	Japan	5–7, 7–1
<i>Acer leucoderme</i> (chalkbark maple)	25–30/30	orange to red fall foliage; drought tolerant	southeastern & southern U.S.	5–9, 9–5
<i>Bauhinia lunarioides</i> , syn. <i>B. congesta</i> (Anacacho orchid tree)	8–12/8–10	white or pink flowers in spring; drought tolerant	south Texas, Mexico	9–11, 12–8
<i>Chionanthus retusus</i> (Chinese fringe tree)	10/10	fragrant white summer flowers, attractive peeling bark	China	5–9, 9–3
<i>Chionanthus virginicus</i> (fringe tree)	10–15/10	fragrant white summer flowers, blue-black fruit	eastern U.S.	4–9, 9–1
<i>Cornus ×rutgersensis</i> Stellar Series (Rutgers hybrid dogwoods)	20/25	white spring flowers, red fruits and red foliage in fall; disease resistant	hybrid	5–8, 8–4
<i>Magnolia</i> 'Butterflies'	15–25/10–15	yellow spring flowers usually before foliage	hybrid	4–8, 8–1
<i>Magnolia ×loebneri</i> 'Leonard Messel'	25/20	lilac-pink spring flowers	garden origin	5–9, 9–5
<i>Malus sargentii</i> Firebird® (Sargent's crabapple)	6–10/8–15	white spring flowers open from attractive red buds, dark red fruits in fall	garden origin	4–7, 7–1
<i>Oxydendrum arboreum</i> (sourwood, sorrel tree)	25–30/25	white flowers in midsummer, yellow to purple fall foliage	eastern North America	5–9, 9–3



A fringe tree in early summer bloom is a showstopper in this mixed bed at Chanticleer Gardens in Wayne, Pennsylvania.

shiny deciduous leaves appear, followed in summer by the dangling clusters of fragrant white flowers. In fall, small tan fruits stand out against a backdrop of foliage that first turns deep purple, then a brilliant, long-lasting crimson.” Generally pyramidal in shape, sourwoods grow slowly to 25 or 30 feet tall. O’Sullivan says they are not tolerant of pollution, so are best suited to moist, free-draining sites in suburban or rural gardens.

UPPER MIDWEST Although crabapples (*Malus* spp.) figure on several lists of overused trees, Edward Hasselkus says they are still important components of the landscape in the upper Midwest—it’s all in picking the right selections.

A horticulture professor emeritus at Longenecker Gardens at the University of Wisconsin–Madison, Hasselkus emphasizes that the first priority is to select cultivars that are resistant to apple scab. “Beyond that, I favor crabapples with tiny fruits bite-sized to birds, as well as highly colored and highly persistent fruit.” For example, he recommends *Malus sargentii* Firebird® over the species because it fruits every year and holds its fruit all season.

Among weeping crabapples, ‘Louisa’ and ‘Molten Lava’ are his favorites. And for an upright form, he vouches for ‘Adirondack’, a disease-resistant selection with pink buds and white flowers introduced



Disease-resistant ‘Adirondack’ crabapple has a compact habit, pink flower buds that open white, and small reddish-orange fruits.

through the U.S. National Arboretum’s breeding program.

Given the option of choosing only one crabapple, his pick would be Pink Sparkles®, Hasselkus says, because it has “delightful rose-pink flowers, which is fairly uncommon.”

According to Nancy Rose, coauthor of *Growing Shrubs and Small Trees in Cold Climates* (Contemporary Books, 2011), “several deciduous magnolias make excellent small trees for the Upper Midwest.” Rose, a former horticulturist at the Minnesota Landscape Arboretum who is now editor of *Arnoldia* magazine, recommends Loebner magnolia (*Magnolia × loebneri*), which grows about 25 feet tall and wide. “The pink-flowered cultivar ‘Leonard Messel’ is especially pretty,” she says.

SOUTHWEST AND CALIFORNIA Scott Calhoun, an author and garden designer based in Tucson, Arizona, says he would like to see less reliance on Chilean mesquite (*Prosopis chilensis*) and its hybrids in Southwest landscapes because it is shallow-rooted and “has a tendency to blow over.” As an alternative, Calhoun suggests Arizona native mesquite (*P. ve-*

lutina) which he says is a “slower growing, but a more long-lived tree.”

Otherwise, he is partial to Texas mountain laurel (*Sophora secundiflora*), especially the silver-leaved ‘Silver Peso’. Calhoun also recommends the native Anacacho or Mexican orchid tree (*Bauhinia lunarioides*, syn. *B. congesta*). “It’s an exotic-looking tree with tiny white flowers and butterfly-shaped leaves,” he says.

California-based garden designer and consultant Nan Serman, author of *California Gardener’s Guide* Volume II (Cool

summer, puffs of bright yellow flowers play off the leaves. The tree is hardy to 20 degrees, extremely drought-tolerant, and can be pruned to an umbrella shape or left more vase shaped.” The slightly taller and wider *Arbutus* ‘Marina’—a hybrid of native strawberry tree (*Arbutus unedo*) and European *Arbutus*—“has shreddy, cinnamon-colored bark and leathery, deep green leaves,” says Serman. “In spring, strands of pinkish or cream-colored flowers decorate the branches; later, they yield yellow/gold/red berries much beloved by birds. It thrives on very little water and is hardy to 15 degrees.”



Native from central Texas to southern New Mexico, Texas mountain laurel or mescal bean develops into a large shrub or small tree bearing fragrant lavender to purple flowers in spring.

Springs Press, 2007), would like to see fewer Brazilian peppers (*Schinus terebinthifolius*) planted. “It was once popular for being a fast-growing evergreen with red berries,” she says. “But its shallow roots crowd out anything planted nearby, then creep away and sprout every 10 feet or so from the mother tree.” Her recommended alternatives are pearl acacia (*Acacia podalyriifolia*) and *Arbutus* ‘Marina’. The former grows 15 to 20 feet tall and wide with “rounded, silky, evergreen blue-green leaves that shimmer in the sun,” says Serman. “In

PACIFIC NORTHWEST Richie Steffen, curator at the Elisabeth C. Miller Botanical Garden in Seattle, Washington, recommends avoiding the commonly available seedling-grown red Japanese maples (*Acer palmatum* var. *atropurpurea*). “Here in the Northwest we have a wealth of good maple cultivars that keep their burgundy foliage color all summer and have brilliant fall color,” he says. Among them is the cutleaf full-moon maple (*A. japonicum* ‘Aconitifolium’), which he says “is one of the first

Sources

Broken Arrow Nursery, Hamden, CT. (203) 288-1026.

www.brokenarrownursery.com.

Forestfarm, Williams, OR. (541)

846-7269. www.forestfarm.com.

Greer Gardens, Eugene, OR. (800)

548-0111. www.greergardens.com.

Mail Order Natives, Lee, FL.

(850) 973-6830.

www.mailordernatives.com.

Meadowbrook Nursery, Marion, NC.

(828) 738-8300. www.we-du.com.

Rare Find Nursery, Jackson, NJ. (732)

833-0613. www.rarefindnursery.com.

Resources

The Homeowner’s Complete Tree & Shrub Handbook by Penelope O’Sullivan. Storey Publishing, North Adams, Massachusetts, 2007.

Manual of Woody Landscape Plants (6th ed.) by Michael Dirr. Stipes Publishing, Champaign, Illinois, 2009.

Native Alternatives to Invasive Plants by C. Colston Burrell. Brooklyn Botanic Garden, Brooklyn, New York, 2006.

Trees for the Small Garden by Simon Toomar. Timber Press, Portland, Oregon, 2005.

trees to start coloring up for us in September.” Steffen also admires a relatively new selection called ‘Purple Ghost’. “It has rich burgundy foliage tinted with luminescent crimson variegation, making it unique among Japanese maple cultivars,” he says. “It is one of the finest trees for autumn color, climaxing in a fluorescent red.”

DIVERSIFYING THE LANDSCAPE

With so many out-of-the-ordinary small tree options to choose from, it’s easy to make your garden stand out from everyone else’s. Whether you opt for improved versions of beloved species or seek out uncommon specimens from other genera, you can never have too many choices when it comes to small ornamental trees.

Linda Askey is a horticulturist and garden writer based in Birmingham, Alabama.



Saving seeds is an easy way to ensure that you'll always have your favorite plants in your garden. All it takes is some know-how and a little extra effort. BY ROBERT GOUGH AND CHERYL MOORE-GOUGH



Excerpted and adapted from *The Complete Guide to Saving Seeds* by Robert Gough and Cheryl Moore-Gough ©2011 by Bob Gough and

Cheryl Moore-Gough. Used with permission from Storey Publishing.

Top: The small, dark seeds of *Nigella* are enclosed in multi-chambered pods.

SEEDS ARE sometimes overlooked by gardeners in their pursuit of a bountiful harvest of fruits and vegetables, and collecting them is viewed as a time-consuming labor best left to seed companies. As horticultural educators and home gardeners, we've discovered that collecting seeds has been a satisfying extension of our other gardening efforts, and being seed savers has made us better gardeners overall because of our active involvement in all phases of a plant's growth.

Plants do a fine job of producing their own seeds year after year, but when we save seeds of favorite plants for replanting, we must manage the process so that we end up with the healthiest, most vigorous, and most reliable seeds possible. We'll cover the techniques you need to know to improve your chances of success.

TIMING THE HARVEST JUST RIGHT

Maximum seed viability and seedling vigor occur only when fruits are *physiologically* mature, which often differs from their horticulturally mature stage, which refers to the ripeness stage at which people like to eat a fruit. A physiologically ripe cucumber, for example, is large, yellow, soft—and pretty much inedible. If you harvest *before* physiological maturity, seeds will be inferior.

Estimating seed maturity correctly is difficult because it depends on weather, site conditions, and location of the fruit on the plant. For instance, cucumbers grown in sandy, dry soil ripen faster than those planted in loamy soil; lupine seeds in lower pods on the flower stem ripen before the seeds in upper pods.

Changes in the appearance of fruits or seeds are often fairly good indicators of ripeness. Immature fruits are firm and commonly green, changing to yellow, brown, reddish, or purple as they mature and soften. Luckily, for many plants, a week or more elapses between seed maturity and fruit drop. Here are some tips for determining when to harvest:

Vegetables and Fruits At physiological ripeness, many vegetables and fruits will have changed color and become soft. The seeds of some crops will also change color: Seeds of beets and watermelons turn brown; pepper and squash seeds may be white; pea seeds are green or yellow.

Look for fleshy fruits that not only have developed full ripe color but also have softened. Most ripe fruits should separate easily from a plant's stems, spurs, or branches.



The seeds of cucumbers are ripe when the fruit has turned yellow and become soft.



An immature sunflower head, bottom, is covered with floral structures; ripe seeds are revealed when a head has matured, top.

Herbaceous and Woody Ornamentals

Seeds of most flower species are best harvested when the flower heads or fruits are completely brown and dry. Ripe flower seeds may be black, gray, or brown. The seeds of some plants, such as sunflowers, ripen over a long period of time. For these plants, enclose the seed heads in a bag and wait until the heads are thoroughly dry before harvesting them.

Seeds of most woody plants turn dark brown or black at maturity. Cut open a few fruits to check.

SEED-GATHERING TECHNIQUES

It's generally best to wait for plants to shed their fruit before collecting them. How-

ever, if fruit is at risk of being eaten by wildlife, harvest before it is fully ripe. Pre-emptive action is also needed for plants with brittle seed heads that tend to shatter and thus are prone to losing their seeds.

Shattering of seed heads is common in members of the carrot family, such as dill and fennel. Fruits of some other plants, such as impatiens, actually explode to release their seeds, throwing them as far as 10 feet.

For these types of plants, place paper bags over the seed clusters as the first fruits begin to brown and fasten the bags to the stems with twine. Shake the stems each day to loosen the seeds into the bags. After a couple of weeks, snip the stems and

place the bags containing the seed clusters in a warm place to finish drying. Rub the dried clusters in your hands to remove remaining seeds.

EXTRACTING SEEDS

In most cases, you'll need to extract the seeds from the fruits before you dry them for storage. This is vital with fleshy fruits such as tomatoes, because the pulp may harden around the seeds and encourage rot or attract insects. Excellent ventilation is essential during the drying period to discourage fermentation, which produces heat that can damage the seeds.

Collect nonfleshy fruits such as peas and beans when they are fully dry. Then simply extract the seeds and spread them on screens to dry further.

Handle all seeds as gently as possible to avoid damaging them.

Extracting Seeds from Fleshy Fruits

Large fruits such as peaches just need to be cut open to pick out the seeds. For fleshy fruits with multiple seeds, such as eggplant, a food blender comes in handy. Place a cup of fruit into the blender, add a little water, then blend with about a dozen five-second bursts of power. Rinse the macerated fruit with water and discard everything that rises to the top; viable seeds will sink to the bottom. Repeat this process several times.

Extracting Seeds from Pulpy Fruits For cucumber, squash, melon, and tomato, slice the fruits lengthwise and scoop the seeds and jellylike pulp into a container. Add an equal amount of water and put the container somewhere out of direct sunlight at 60 to 70 degrees Fahrenheit for three to six days, stirring twice daily to prevent fungal growth. Pour off everything that floats to the top, changing the water several times until it remains clear. The good seeds will be at the bottom.

Alternatively, remove the seeds from the fruits and place them in a strainer. Rinse off all the pulp you can.

Whichever method you use, dry the seeds afterward on a cookie sheet or screen in a warm, well-ventilated area. Stir the seeds occasionally, so they dry evenly.

Extracting Seeds from Dry Fruits Nonfleshy fruits usually need to dry *before* you



Hostas produce capsules that split open when ripe to release small, winged seeds.

ABOUT F1 HYBRID SEEDS

A hybrid plant is one that results from a cross between two inbred lines (plant lines that have been produced by a series of self-pollinations). Plant breeders control this process very closely by carefully choosing two parent plants with certain characteristics and pollinating one with the other to produce offspring known as F1 hybrids. Many common cultivated varieties of vegetables and flowers are F1 hybrids. The designation F1 means the “first filial generation,” or the first generation of a plant after a controlled cross between two parents. F1 hybrids usually produce vigorous, high-yielding, pest-resistant plants with high-quality flowers, fruits, or roots.

F1 hybrid seeds produce plants true to type, but if you save seeds from an F1 hybrid plant, the plants that sprout and grow from those seeds won't be, because they won't have the precise genetic mix that results from the original controlled cross. Such plants are called the F2 generation. Many F2 plants are likely to have fairly desirable qualities as well, but as you continue to save seeds, those qualities may be lost. Most likely, if you keep on saving the seeds, you'll eventually wind up with plants far inferior to the original F1 parents. —R.G. and C.M-G.

can extract the seeds. Facilitate the process by spreading the fruits loosely on screens and putting them into a very low oven set no higher than 120 degrees Fahrenheit. Fruits are sufficiently dry when you shake them and hear seeds rattling inside.

Beans and peas should be left to dry on the vine as long as possible in the garden. Then pull an entire plant and hang it upside down in a shed or garage to dry for another week or so.

SEPARATING SEEDS FROM FRUITS

After the fruits have dried, there are various methods for removing their seeds depending on whether the fruits are dehiscent—they split open at maturity to release the seeds—or indehiscent—they remain intact.

Examples of dehiscent fruits include poppies, impatiens, and okra. Peas, corn, and sunflowers produce indehiscent fruits.

Dehiscent Fruits One way to remove the seeds from dehiscent fruits is to put them in a cloth bag, then vigorously shake the bag. Rapping the fruits against the inside of a bucket also works, as does placing them in a pillowcase and hitting the bag several times with a broomstick.

Indehiscent Fruits With small quantities, it's easy to crush or cut away the pods or husks and remove the seeds. For large quantities, it's easier to place the fruits on a piece of plywood and rub them with a piece of scrap wood, or place the fruits in

a pillowcase and walk gently on it while wearing sneakers.

PREPARING FOR STORAGE

Before you store your dry seeds, it's a good idea to give them a final cleaning to remove small leaf particles and other debris.

One common technique is to sift the seeds through a series of seed-cleaning screens with different-size meshes. These are available from garden supply companies, or you can make your own. Pour the seeds onto the top screen and shake the whole stack. The larger pieces of debris will catch in the upper, large-mesh screens while the smaller seeds fall to the lower screens.

Light debris can also be separated from seeds by winnowing, or blowing air across them. Put the seeds in a bowl or tray, then toss them gently upward in front of a fan or hair dryer set on low. The heavier seeds will fall back into the container while the debris will blow away.



To remove fine debris from seeds, swirl them in a plastic cup. An electrostatic charge will trap the debris and dust on the cup's inside surface.

For very small seeds, create an electrostatic cleaner by rubbing the inside of a plastic cup with a nylon stocking or other synthetic fabric. Pour the seeds into the cup and rotate the cup to roll them against the sides. Trash will cling to the sides.

Put the seeds into a clean container and store them in a cool, dry place away from light. Don't forget to fully identify and label your seeds so you know exactly what you'll be planting next season.

Husband and wife Robert Gough and Cheryl Moore-Gough have written five gardening books together and gardened and saved seeds for more than 30 years. The couple lives in Bozeman, Montana.



Sieving seeds through a graduated series of screens enables large debris to collect in the coarser upper meshes, while small debris sifts through to the fine lower meshes. Here, seeds have settled on the third screen from the top.



Autumn Bulbs

BY NANCY GOODWIN

Fall-blooming bulbs add bright colors to the landscape at a time when little else is blooming.

FALL-BLOOMING BULBS provide a glorious display of floral fireworks to celebrate the end of the gardening year. And, as winter approaches, they offer temperate-zone gardeners a heartwarming final reminder of the anticipated glories of their spring-blooming cousins. Yet, surprisingly, they are one of the most underused components of many American gardens.

Perhaps some gardeners are put off because fall-blooming bulbs tend to be more expensive than the spring bloomers. Given the right conditions, most proliferate rapidly so that a small initial investment yields a profitable return over several growing seasons.

It can also be tricky to find suitable companion plants for these autumn bulbs because many plants that experience peak growth in summer are too large and vigorous to allow the smaller bulbs to persist or to be seen. Most summer-active plants don't lose their foliage early enough for the fall bulbs to receive the necessary light for optimal growth or flowering. Yet these difficulties can be surmounted by careful placement in the garden.

Because bloom times vary from region to region, just what constitutes a fall-blooming bulb depends in part on where you live. September 23 is the official first day of fall in 2011, but in my North Carolina garden, located in USDA Plant Har-

diness Zone 7 and AHS Plant Heat Zone 7, the cool nights of fall sometimes don't arrive until October. Yet as the days start getting noticeably shorter in mid-August, many fall-flowering bulbs begin to bloom. The slanting light announces a change of season, and my garden becomes more exciting each day.

CYCLAMEN

Although not strictly speaking a bulb, *Cyclamen hederifolium* anticipates fall with a few flowers in late June and July. These plants grow from tubers in shaded, well-drained locations and produce flowers in shades of pink or deep crimson as well as white, followed by spectacular leaves that

Cyclamen hederifolium forms a carpet of mottled foliage and delicate pink flowers at the foot of this tree at Filoli gardens in Woodside, California.

persist into spring. A recently named relative, *C. confusum*, extends the blooming period well into December. Unlike *C. hederifolium*, this species has thicker leaves and large, often fragrant, flowers that may be any shade from pink through dark magenta. *Cyclamen graecum* also blooms from late summer through fall and, unlike the previous two species, it produces beautiful heart-shaped leaves as it blooms. This species requires some sun to bloom and grows well in rocky soil. *Cyclamen cilicium*, *C. intaminatum*, and *C. mirabile* bloom from October until the darkest days of winter with smaller, more delicate-looking pink or white flowers and well-marked leaves.

COLCHICUMS

The leafless flowering stalks of colchicums often appear in August. As garden writer Louise Beebe Wilder notes in *Adventures With Hardy Bulbs* (1936), “They come blowing out of the earth with all the verve and enthusiasm that we associate with spring’s manifestations, when most other plants are making their valedictory gestures.”

Deep pink *Colchicum cilicium* is usually the first bloomer in my garden, flowering in September and producing its leaves shortly thereafter. White- or pink-

flowering *C. speciosum*, *C. autumnale*, and the many hybrids of these two species bloom throughout September above a base of black mondo grass (*Ophiopogon planiscapus* ‘Nigrescens’). They also look wonderful paired with bright magenta-flowering ‘Wave’ petunias or pinkish purple-flowered *Verbena canadensis*.

The grand finale comes in October with masses of the cultivar ‘Waterlily’, appropriately named for its many-petaled, pinkish mauve or white flowers, which are low and upward-facing like waterlilies. In my garden, they grow near the late-flowering *Allium thunbergii* ‘Ozawa’, which has clusters of dark purple flowers atop six-inch stems. Another well-known colchicum cultivar is ‘The Giant’, whose pale purple flowers, marked with white at the base, reach eight inches or more.

Colchicums are easy to grow and don’t tend to be eaten by herbivores such as deer or voles that relish other bulbous plants. The large, straplike, dark green leaves of most species appear in late winter only to die away in May, at which time they look rather messy. They grow well in full sun or in the woods at the base of deciduous trees, where the winter sun has a chance to ripen their foliage before the leaves return to the trees.



The yellow flowers of *Sternbergia lutea* are complemented by its sturdy, straplike foliage.

Harder-to-find colchicums worth seeking out through seed exchanges include: *C. lingulatum* (pinkish mauve flowers with yellow anthers), *C. kotschyi* (small, lilac-pink, starry flowers), *C. baytopiorum* (purple-pink flowers), pink or white *C. byzantinum*, and *C. ‘Autumn Herald’*.

STERNBERGIAS

Along with colchicums, sternbergias (*Sternbergia* spp.) are the workhorse bulbs of the fall garden. In my garden, the bright yellow stars of *S. sicula* emerge in September to usher in the long season of bloom for this brilliant genus. This species has clear yellow flowers with pointed petallike tepals that bloom on six- to eight-inch stalks. I grow them near hardy, purple-flowering verbenas and late-blooming *Allium senescens* ssp. *montanum* (syn. *A. lusitanicum*), which has flowers of a medium lilac shade that precede the sternbergias by a week or so.

Shortly after this small-flowering species appears, the larger and more widely available *S. lutea* begins blooming. The cupped flowers are bright yellow and open at the same time as, or shortly before, the dark green leaves emerge. When I moved to Montrose 34 years ago, I brought three

Colchicums have naturalized in this part of the author’s North Carolina garden.



bulbs from my first garden and now have hundreds throughout the garden. Many grow beneath two large dawn redwoods (*Metasequoia glyptostroboides*), where the winter sun is strong enough for the bulbs to produce flowers each year. Those lightly shaded plants often bloom first, but sternbergias grow best in full sun, where they are attractive with chrysanthemums.

OXBLOOD LILIES

Most of the fall-blooming bulbs I have described are native to southeastern Europe, the Mediterranean, or northern Africa, but oxblood lilies (*Rhodophiala* spp.) are from the Andes of South America. These little-known members of the amaryllis family are among the most exciting bulbs of fall, sending up leafless stems bearing several dark red flowers in late August and early September.

The showiest oxblood lily is a sterile hybrid of *R. advena* that has been a pass-along plant in the American South. I grow it in full sun at the corner of a greenhouse, where it benefits from the rain runoff. I also planted some bulbs at the edge of a bed near *Juniperus communis* 'Berkshire' and have been gratified by the pleasant contrast between the blood-red flowers and the silver to blue-gray needles of the juniper. They also look good with the dusky purple-leaved *Sedum* 'Mohrchen' or with the brighter, variegated *Sedum* 'Frosty Morn'.

I have also grown *R. bifida*, which has smaller flowers that are shades of pink and bloom later than those of *R. advena*. It thrives in a loamy, well-drained soil and, like other amaryllises, needs a dryish dormant period in summer.

FALL COUSINS

Several genera better known for their winter- and spring-flowering prowess also include species that bloom in fall. Among these are *Scilla*, *Acis* (formerly *Leucojum*), *Galanthus*, and *Crocus*.

The first of these to bloom, autumn squill (*Scilla autumnalis*), can be counted on to begin flowering just as its foliage dies in July. But its main show is August and September, and flowers continue to open into October. Open clusters of many small, violet-blue flowers with indigo-blue anthers bloom on six- to eight-inch-tall stalks, followed by slender, dark green leaf

TIPS FOR FALL-BLOOMING BULBS

- Most fall-blooming bulbs grow best if planted in mid- to late summer or early fall, just after their foliage goes dormant, so order them in spring or early summer for delivery at that time.
- Some bulbs, including sternbergias, are becoming endangered in their native habitats because they are being illegally collected. Before purchasing, ask your suppliers to guarantee they are not selling bulbs collected from wild sources.
- Plant bulbs in free-draining soil—a rock garden or raised bed is ideal if your soil tends toward clay—in a site where they will receive full sun or very brief periods of shade. Most are winter-active, so they grow successfully under deciduous trees.
- Follow the common rule of thumb for planting depth for most fall-blooming bulbs: Plant them so the top of the bulb is at a depth twice its height.
- Colchicums usually don't need protection from rodents because they are toxic, but if you have problems with voles or squirrels, you may want to protect sternbergias, oxblood lilies, and other bulbs by planting them in fine-mesh wire cages or surrounding them with gravel or sharp-edged soil additives such as Perma Bloc that are designed to deter rodents.
- Mulch lightly around the bulbs or grow them through non-aggressive, mat-forming groundcovers such as creeping thyme or creeping phlox to reduce the chance of mud being splashed on their delicate blooms.
- Because most of these bulbs have small flowers and don't always bloom at exactly the same time, plant them in large groupings for best effect. Crocuses, colchicums, and sternbergias are ideal for massing and naturalizing.
- Avoid planting fall-blooming bulbs where their spring foliage will shade or suffocate other small or delicate plants, or where they will be obscured by the summer growth of larger plants.
- Although some references advise dividing fall-blooming bulbs when their foliage starts to wither in early summer, I divide most of mine—especially colchicums and sternbergias—just as they are coming into bloom.

—N.G.



The red, amaryllislike flowers of oxblood lilies add an exotic flair to autumn gardens.



Above: Growing through fallen leaves, delicate autumn snowdrops foreshadow the arrival of their spring counterparts. **Right:** When massed, the flower spikes of autumn squill (*Scilla scilloides*) create a striking show in the fall garden.

blades. This squill is beautiful in company with pink-flowered cyclamens such as *Cyclamen hederifolium*.

The larger *Scilla scilloides* appears in my garden in September and continues to flower for a month or more. Many fluffy pink flowers are borne on stalks to a foot tall; the foliage of this squill appears with the flowers and seems to make a second burst of growth in early spring.

Squills naturalize slowly, but you can speed up the process by gathering the ripe seeds in late fall and sowing them in flats. They germinate readily, will grow all winter in a protected greenhouse or under lights indoors, and can be planted into the garden the following spring.



The fall snowflake (*Acis autumnalis*) begins to bloom by July, with small, white flowers that dangle from reedlike stems until the weather turns cold in December. Each flower consists of six petal-like tepals, and each stem bears from one to four flowers. They grow equally well for me in full sun in a rock garden, in a woodland garden, and in shade beneath a Deodar cedar (*Cedrus deodara*). They tolerate summer drought beautifully and have naturalized everywhere I have planted them. They are attractive growing with autumn-flowering *Cyclamen cilicium* because the contrast of the rounded, well-marked cyclamen leaves with the linear, dark green blades of the snowflake is beautiful from fall through spring before they both disappear for the summer.

Similar in appearance to their spring cousin, fall snowdrops are not as easy to find but are worth the effort. *Galanthus reginae-olgae* sometimes blooms as early as September but can be counted on for its

main display in October. The flowers, borne on four- to six-inch stalks, have a single green marking on the inner cup segments. Its green leaves, produced after the flowers, bear a lighter gray stripe down the center of each leaf. It is increasing rapidly at the south end of my rock garden, where the bulbs have full sun all summer. I also grow it at the edge of the woods and continue to divide clumps every three years.

Galanthus peshmenii also develops flowers before its leaves, but it blooms a little later than *G. reginae-olgae* and is not as vigorous for me. The leaves of this species are grayer and the flowers are marked with an inverted V on each inner tepal.

Both these snowdrops are followed in late fall and early winter by *G. elwesii* var. *monostictus*, which has broad, gray-green leaves and large flowers. Planted beneath a dawn redwood in my garden, this last snowdrop is beautiful when lightly covered by the freshly fallen butterscotch-colored needles of the deciduous conifer. I have large woodland plantings with thousands of bulbs produced by dividing the original dozen plants every two or three years.

AUTUMN CROCUSES

Most gardeners think of crocuses as spring-blooming bulbs, but in fact nearly as many bloom in fall as in spring. By selecting several species with overlapping bloom times, you can have crocuses in flower from fall through spring. Most crocuses develop flowers and leaves at the same time, but a few send up their flower stalks before the leaves emerge.

One of the most common crocuses, *Crocus speciosus*, is also among the first to bloom in fall. The blue-purple or white flowers of this species appear in late September, but the leaves that follow wait until late winter. I grow them throughout my rock garden, in the woods, and even beneath a Deodar cedar. By the time the flowers appear, the sun is at a low enough angle that the buds receive enough direct sunlight to open. Rodents seldom bother these corms, so they have naturalized throughout the gardens, producing flowers in many shades and sizes. They blend well with fall cyclamen such as *Cyclamen hederifolium* and *C. graecum*.

Blooming a little later, delicate-looking *Crocus goulimyi* bears its cup-shaped flowers at the top of tall perianth tubes. The

GROWING BULBS FROM SEED

One good way to increase your supply of fall-blooming bulbs—or propagate rare species that are hard to find except through seed exchanges—is to grow them from seed. Plant seeds from your own garden as soon as they ripen, usually in early spring—watch for the tips of the beige capsules to open. I usually just scuff up the soil around the parent plants and sow the seeds nearby to create a larger display.

If you want to propagate bulbs to move elsewhere or give away, fill a flat or pot with a free-draining soil mix. Sow seeds on the surface and cover them with a thin layer of coarse sand or soil mix. Bottom water and store them in a protected location where they will be exposed to natural temperature cycles. Keep the soil moist but not soggy.

Bulb seeds tend to germinate when the parent plants would normally come back into growth, so look for seedlings to appear in late summer or early fall. Keep the seedlings in a cold frame or cool greenhouse over the winter, continuing to keep the soil moist until late spring, when they should be ready to go dormant. At that time, gradually taper off and then water about once a month. In late summer, they can be transplanted outdoors. Because it's not always easy to see the tiny new bulbs, I often just carefully transfer the contents of the flat into a shallow planting hole.

—N.G.

flowers appear to be bicolor, with the three outer petals a different shade from the inner ones. Though the flowers are smaller than those of *C. speciosus*, the habit is superior because they don't collapse shortly after flowering.

Another delicate-looking crocus is *C. pulchellus*, which resembles *C. speciosus* but is a better choice because it also remains upright after blooming. The flowers, which bloom in September and October for me, may be white or lilac-blue.



An early fall bloomer, *Crocus speciosus* bears bluish white flowers with dark patterning.



The flowers of *Crocus medius* are distinguished by bright, eye-catching orange stigmas.

The saffron crocus (*C. sativus*) is dramatic because its scarlet stigma is too long to be contained within the flower itself and peeks out above the petals. As with *C. speciosus*, its flowers sometimes flop soon after blooming, which has led some gardeners to consider it more of a culinary curiosity—the stigmas are harvested to produce the flavoring saffron. But for me, it is a wonderful part of the fall crocus spectacle.

The closely related *C. cartwrightianus* forma *albus* has white petals and a scarlet stigma surrounded by three yellow anthers. This crocus grows easily in the shade of deciduous trees and combines well in my garden with the small *Hosta venusta*.

Blooming in mid- to late October, *C. medius* is one of the most dramatic fall-flowering species, featuring red-violet flowers with vivid orange stigmas. The

corms multiply slowly, however, so plant a large grouping.

There are many other lovely crocuses that can be acquired through friends or from seed exchanges. Some particularly worth pursuing, listed roughly in order of blooming, include: *C. niveus* (white with a yellow throat), *C. tournefortii* (pale violet-blue), *C. longiflorus* (shades of violet), *C. kotschyanus* (pale violet), *C. nudiflorus* (deep purple), *C. tomasii* (lilac with a white throat), and *C. veneris* (white striped with violet-blue). *Crocus tournefortii* is especially desirable because the flowers do not close at night but remain open as long as they persist.

Depending on where you live, the final crocus of fall might be considered the first winter one. For me this is *C. laevigatus*, which in late November bears lilac-purple flowers with feathered, darker purple ex-

Sources

Brent and Becky's Bulbs, Gloucester, VA. (877) 661-2852.

www.brentandbeckysbulbs.com.

Edgewood: The Lonsdale Garden, Exton, PA. Sells seed-grown cyclamen by mail (shipped in August when the plants are dormant). www.edgewoodgardens.net.

Fraser's Thimble Farms, Salt Spring Island, BC, Canada. www.thimblefarms.com.

Odyssey Bulbs, South Lancaster, MA. (800) 517-5152. www.odysseybulbs.com.

Resources


Adventures with Hardy Bulbs by Louise Beebe Wilder. The Lyons Press, New York, New York, 1998. (Reprint of 1936 original.)

Garden Bulbs for the South by Scott Ogden. Timber Press, Portland, Oregon, 2007.

The Little Bulbs: A Tale of Two Gardens by Elizabeth Lawrence. Duke University Press, Durham, North Carolina, 1986.

The Smaller Bulbs by Brian Mathew. B.T. Batsford, London, England, 1987.

teriors. When I weed near them, I can smell their delicate fragrance, which is akin to that of freesias.

These crocuses and the other fall-blooming bulbs are valuable for their ability to bridge the gap between summer and winter. I never think of bulbs only for their spring display because I know that I can have them blooming throughout the year. Those in fall are most welcome to me because they signal an end to the heat and humidity of summer and the beginning of a season I savor for its cool nights and perfect gardening conditions. 

Nancy Goodwin lives and gardens at Montrose, a listed property in the National Register of Historic Places in Hillsborough, North Carolina. Goodwin is the author of Montrose, Life in a Garden (Duke University Press, 2005). This article is an updated version of one published in the September/October 2001 issue of The American Gardener.

planting in Dry Shade



DRY SHADE poses one of the worst headaches for gardeners. Plants need light and moisture to survive. When both are in short supply most plants suffer, some simply die. It's enough to make any gardener give up right there. But take heart. All is not lost. Almost every garden has dry shade under an evergreen tree, a dense deciduous tree, thick shrubs, or an overhanging roof. Often a number of factors work together to create the most inhospitable site in the garden. But this is a problem that can be remedied to some degree.

There are different kinds of shade, some more of a problem than others. A border in shade cast by a wall or fence, even a north-facing one, may never benefit from direct sun but will never be dark; it will always be brighter than a border under a big tree. And its shade changes

Tame this most challenging of sites with these plant recommendations and gardening techniques.

BY GRAHAM RICE
PHOTOGRAPHS BY JUDYWHITE

In the author's Pennsylvania garden, ground-covering barrenwort (*Epimedium* sp.) thrives in the dry shade of a large tree near the house. To the right, hostas and rogersias mingle in moister spots near a faucet.

with the time of year and the angle of the sun. In the south, for example, the sun may be so high and intense in midsummer that the heat and brightness may severely stress plants that enjoy the shady conditions provided by a wall or fence in other times of the year.

More moisture is often available to plants growing alongside walls and fences than to those growing under trees, simply because there is no overhead cover and root competition. However, the soil at the very back of the border may remain stubbornly dry.

Shade from evergreen trees and large shrubs is the most challenging situation, although it varies in its quality; shade from the dense, broad canopy of an evergreen magnolia or a large rhododendron is more overpowering than shade from the thin—and upright canopy of a euca-

lyptus. Deciduous trees vary enormously in the amount of shade they cast, depending upon how early they come into leaf in spring and the natural density of the canopy. The European beech (*Fagus sylvatica*), for example, is far more unfriendly to the plants growing beneath it than, say, Kentucky coffee tree (*Gymnocladus dioica*).

The soil under trees can be very dry because their roots suck up any available moisture and the dense leaf canopy shields the soil from rain. Deciduous trees at least allow a winter and spring respite from shade and drought, and for many woodland plants, those early-season weeks of light are crucial.

There are three ways of dealing with this difficult situation—apart from tossing up your hands and just using your dry-shade location as a place to put a garden shed or tire swing for the kids. 1) Allow more light into dark places. 2) Make dry conditions less dry. And, of course, 3) Choose plants that are naturally adapted to dry shade.

LET IN THE LIGHT

Increase the amount of light reaching the soil—and suddenly you have far more plants to choose from. One way to achieve this is by some thoughtful pruning of trees causing the problem.

Light from the Side Light does not easily penetrate branches hanging close to the ground, so consider trimming these first—this process is sometimes referred to as “limbing up.”

For a few coniferous evergreens—the true cedars (*Cedrus* spp.), for example—low, sweeping branches are an essential feature of the beauty of a mature specimen. In that case, the wiser course is to enjoy the tree in its natural form rather than remove low branches to allow planting.

For most other coniferous evergreens, including spruces (*Picea* spp.), that naturally lose their lower limbs as they mature, removing the lower branches will not ruin the trees’ appearance.

Deciduous trees can also have some lower branches thoughtfully removed without destroying their natural look. The higher the lowest branch is off the ground, the more light can slant in underneath—and the greater the range of plants you can



Removing the lower branches of trees, as was done with this hemlock in the foreground, is one option for allowing more light to reach deeply shaded planting sites.

grow. Here, too, think carefully before removing the low branches of elegant deciduous trees, especially weeping forms.

Light from Above Strategically removing a few major branches higher up in a tree will allow much more light through the canopy without affecting the tree’s natural growth habit.

In the case of small trees, where it’s easy enough to reach branches with a pole saw, this project can be handled by the homeowner. But thinning the crown of a large, mature tree should be left to a professional arborist. It’s well worth

doing, however, because it can allow enough extra light through to significantly broaden the planting possibilities. It can also help alleviate the moisture problem by allowing more rain to reach the soil below.

ADDING MORE MOISTURE

Another, perhaps more crucial, way to improve the situation is to increase the moisture content of the soil. This can quickly turn a problem area into a beautiful shade garden. There are several approaches to work this magic with soil, irrigation, and mulch.



Increasing the organic matter levels in the soil will ensure that more moisture is retained, and this is not difficult to achieve in situations where there are no tree roots. Use compost, leaf mold, or other readily available organic material available in your local area and work it into the soil.

Under trees, the soil may be so full of roots that this approach is not practical—not to mention that disturbing the roots is potentially damaging to the tree. Instead, raise the soil level slightly by creating a raised bed. This can transform the area into a desirable planting space.

Rather than simply spread extra soil over the whole area, contain the new soil with a neat and solid boundary, creating a practical and attractive solution. Choose a



Using logs for the border, the author built a raised bed, left, to facilitate plantings in a dry site under trees in his Pennsylvania garden. After planting, above, the bed included hostas, ferns, daylilies, *Hydrangea arborescens* 'White Dome', *Schizophragma* 'Moonlight', *Galium odoratum*, and creeping Jenny (*Lysimachia nummularia* 'Aurea').

material that harmonizes with the general style of your garden—stone, bricks, wall blocks, logs, or other lumber—to build a low wall around the area where the soil level needs raising; about six to nine inches is usually sufficient. Then fill the area

with a good soil mix. Be sure to keep added soil or mulch from coming into direct contact with tree trunks because it can foster fungal or bacterial diseases.

This soil mix should be a combination of topsoil and organic matter. The precise proportion is not important, but aim for about equal amounts of each to a two-to-one mix of topsoil and organic matter.

It's a good idea to cover the area in landscape fabric to discourage new tree roots growing into your new planting space.

Another obvious part of the solution is to **irrigate the area**. Use soaker hoses or a drip irrigation system to slowly but steadily deliver water directly into the soil. Soaker hoses can be attached to a timer at the faucet, or turned on manually.

Applying mulch is a good practice for a number of reasons, but one of the most important is to conserve moisture in the soil. Use a fine-grade, natural-colored

HELPING PLANTS GROW IN DRY SHADE

If it's not possible to make some of the major changes I've suggested, try these techniques to help plants establish themselves in less-than-ideal conditions:

- Remove small branches with pruners to allow extra light to reach plants below.
- Make a larger planting hole than you would normally to provide a good-sized area of rich new soil.
- Soak plants in liquid fertilizer the day before planting, so that the root ball is primed with nutrients.
- After planting, water the area thoroughly with liquid fertilizer so the new soil into which new roots will grow is also primed with nutrients.
- Ensure that in their first year new plants are never allowed to dry out—water slowly and deeply using a soaker hose.

—G.R.

mulch, and always apply mulch when the soil is already moist. Avoid letting mulch come in direct contact with tree trunks, because it can foster disease.

The most effective approach of all is to use these techniques in tandem—you can build a low retaining wall to create an attractive raised bed, install soaker hoses, then put in your plants and water them in generously, and finally apply the mulch.

10 EXEMPLARY DRY SHADE PLANTS

Based on personal experience in my Pennsylvania garden and observations in other gardens, I recommend the following plants as the toughest of the tough, and proven performers in dry shade. Evergreens tend to predominate because they can use the available light through the full 12 months of the year.

Two of the most resilient and often recommended plants for dry shade are, unfortunately, invasive in some areas of North America. Ivy (*Hedera* spp.) and lesser periwinkle (*Vinca minor*) are well behaved at the cold end of their range, but may be invasive in other areas. Because of this, I've left them out.

AUCUBA or JAPANESE LAUREL

(*Aucuba japonica*)

Tough and resilient evergreen shrubs, the best forms feature variegated foliage, red fall berries—or both. The large, glossy green foliage may be speckled, edged, or splashed in yellow. Although variegated forms may be a little slower to grow, they're still splendid performers in dry shade, reaching 10 feet tall. USDA Hardiness Zones 6–10, AHS Heat Zones 12–6.

CYCLAMEN (*Cyclamen hederifolium*)

Silvery ivy-shaped leaves arise from a steadily expanding tuber, fading away in summer then emerging in fall to last through the winter, even under snow. Pink or white flowers bloom on short stems in late summer. Grows two to five inches tall. Zones 5–9, 9–7.

MALE FERN (*Dryopteris filix-mas*)

It is perhaps surprising that a fern should thrive in dry conditions, but once established, the lacy evergreen fronds of male fern are unexpectedly tolerant of drought. Shade, of course, they enjoy. The erect mid-green fronds are divided

DRY SHADE IN THE SOUTHWEST

Dry shade in the Southwest is different than in other parts of the country. The intensity of the light is so much greater that even under evergreens there is usually more light than in similar situations farther north. So a wider range of plants is suitable. Indeed some plants thought of as sun lovers farther north, including common black-eyed Susan (*Rudbeckia hirta*) and some sages (*Salvia* spp.), will often bloom well in dry shade in the Southwest.

It's also important to note that many of the heat-loving southwestern trees such as live oaks (evergreen *Quercus* species) grow naturally in areas that get very little rainfall and dislike rich, moist soil. So avoid summer irrigation, amending with extra organic matter, and using organic mulch under these trees.

The need to cater to the requirements of these trees means that choosing plants that are naturally drought-tolerant becomes more important in these situations, and changing the soil conditions is less practical.

Plants that will succeed in dry shade in the Southwest include:

Agave spp. (agaves) These familiar architectural specimen plants are good choices in dappled shade. Zones 6–10, 10–5.

Ilex vomitoria (Yaupon holly) This tough and very adaptable small evergreen shrub or tree (10–20 feet tall) bears a generous fall crop of red berries; many selections available. Zones 7–10, 9–3.

Liriope muscari (big blue lilyturf) Vigorous ground-covering perennial with spikes of violet-blue flowers in fall. Great up north, too. Zones 6–9, 8–3.

Ruellia spp. (Mexican petunias) Long-season bloomers with purple petunialike flowers. Look for 'Katie' and *R. malacosperma*. Zones 8–11, 12–5.

Salvia spp. (sages) A number are suitable, including *S. coccinea*, in red, pink, or white; the bright blue *S. lycooides*; and the ground-covering *S. spathacea*. Hardiness varies.

Yucca spp. (yuccas) Many of these famously drought-tolerant plants are well suited to the Southwest as well as other parts of the country. Hardiness varies.—G.R.



and divided again into opposite pairs of leaflets. The selection 'Cristata' is crested at the tips. Grows two to three feet all. Zones 4–8, 8–1.

BARRENWORT (*Epimedium* spp.)

Evergreen barrenworts including *E. ×perralchicum* and *E. perralderianum* have bright yellow spring flowers carried over tough but elegant heart-shaped foliage held on wiry stems. Barrenworts, both evergreen and deciduous, are among the most reliable perennials for dry shade, making good weed-smothering groundcovers as well as dainty cut flowers. Grows 12 to 16 inches tall. Zones 5–8, 8–5.

WINTERCREEPER EUONYMUS

(*Euonymus fortunei* 'Silver Queen')

An old favorite that is effective and attractive as both a groundcover and as a self-supporting climber on walls and tree trunks. The evergreen leaves are edged with cream in spring, fading to white and developing pink winter tints. Grows eight feet tall. Zones 5–9, 9–5.

CLIMBING HYDRANGEA

(*Hydrangea anomala* ssp. *petiolaris*)

Climbing hydrangea roots naturally at the base of trees, a very dry and shady place, then climbs the trunk using its aerial roots. In summer, the plant is covered



Epimedium perralderianum

with 10-inch-wide white flower clusters that resemble those of lacecap hydrangeas. It's also a good choice for growing on walls in poor light. Grows 50 feet tall. Zones 4–9, 9–1.

STINKING IRIS (*Iris foetidissima*)

Slender, pointed, evergreen leaves arch from a tight crown, and among them

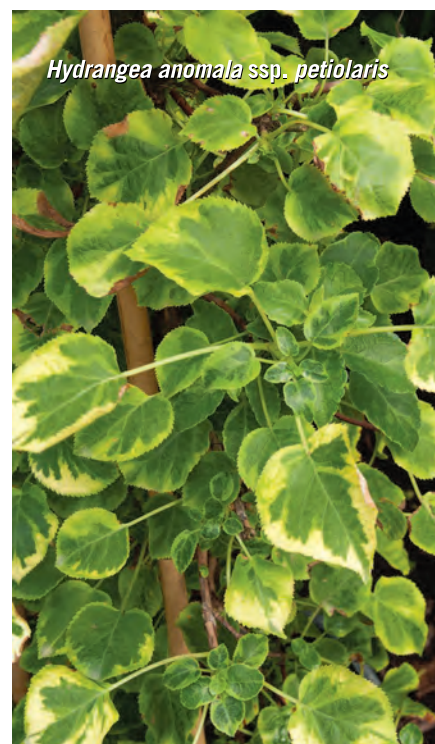
bluish flowers appear in early summer followed by bright, orange-red berries. Selections in other colors are occasionally available, and I encourage you to try them all. Grows 18 inches tall. Zones 4–9, 9–1.

DEADNETTLE (*Lamium maculatum*)

With its low spreading habit, and its neat



Dryopteris filix-mas 'Undulata Robusta'



Hydrangea anomala ssp. *petiolaris*

Resources

International Society of Arboriculture (ISA), www.isa-arbor.com. The ISA website is a good source for information about tree care and to locate professional arborists.

Lady Bird Johnson Wildflower Center plant database, www.wildflower.org/plants. This state-by-state plants database is a good source of information and can be searched specifically for plants that enjoy dry shade.

Planting the Dry Shade Garden by Graham Rice. Timber Press, Portland, Oregon, 2011.

foliage completely silvered or with a central silver splash, this is an easy and valuable plant that roots as it spreads but is rarely a nuisance. Spikes of two-lipped red, pink, or white spring flowers appear in spring. Good selections include 'Beacon Silver', which has completely silver leaves and pinkish lilac flowers, and 'Orchid Frost' for its lavender flowers and neat green edges to the silver leaves. Grows 30 inches tall. Zones 4–8, 8–1.

HONESTY or MONEY PLANT

(*Lunaria annua*)

This easy-to-grow biennial develops a bold winter rosette of dark green leaves that erupts in spring with airy spikes of flowers in white or shades of purple. These are followed by flat, silver seed-heads the size of a silver dollar, ideal for drying. Honesty self-sows, so if you don't want it to spread too readily, cut the heads for drying before the seeds are shed. There are selections with white-splashed foliage. Grows two to three feet tall. Zones 3–9, 9–1.

BUTCHER'S BROOM

(*Ruscus aculeatus*)

This tough evergreen subshrub has rich green leaves the texture of old dry leather with large scarlet berries on female plants. Incredibly adaptable, butcher's broom spreads steadily but slowly to form a three-foot clump. Look for self-fertile forms such as 'Elizabeth Lawrence' or 'Wheeler's Variety'. Grows 20 to 30 inches tall. Zones 7–9, 9–7.



Lamium maculatum

MAKING IT WORK

The main idea to come away with is that even a situation as tough as dry shade can be turned into a lush garden. Do what you can to make it less shady and less dry, then pick plants that are best suited to cope with the conditions.

Prepare well for them, as you should for all new plantings. Get your new dry-shade plantings off to a flying start, and that dull area where you thought

nothing would grow can be transformed into a feature that you will be proud to show off.

*An award-winning garden writer, Graham Rice chronicles his gardening experiences on both sides of the Atlantic in his Transatlantic Gardener blog (TransatlanticGardener.com). His newest book, *Planting the Dry Shade Garden* (Timber Press), was released in August.*

Gardens *for* Learning and Play

BY CHARLOTTE ALBERS

Igniting imaginations, facilitating multidisciplinary learning, and nurturing an appreciation for nature are some of the myriad benefits gardens are providing for kids of all ages.



MY FIRST VISIT to the 4-H Children's Garden on the Michigan State University campus in East Lansing was in 2002. At the time, I was developing and teaching youth programs at a large public garden in the greater Washington, D.C., area, so I was looking at ways to teach science to preschoolers and for new approaches to getting lessons across to large audiences in a limited amount of time. The

creativity of the garden—and the enthusiasm of Jane L. Taylor, its founding curator—made a lasting impression.

This past July, I had the opportunity to return to this garden during the American Horticultural Society's National Children & Youth Garden Symposium (NCYGS). This annual event takes place at different locations around the country and is the only national event for teachers, designers, and others to gather ideas for con-

necting kids with plants and gardening. Since its inception in 1993, the NCYGS has inspired thousands of participants, and through them, has influenced the lives of hundreds of thousands of young people across the country.

This year's Symposium was particularly special because it brought Taylor back to the garden for the first time since she retired in 2006 and moved to Maine. Widely regarded as a pioneer in the



Opposite: A rainbow walkway complements colorful plants from around the world in the Michigan 4-H Children's Garden. **Above:** Interactive features such as this bucket-and-pulley system in the Lena Meijer Children's Garden encourage exploration and play.

youth gardening movement, she dedicated her 20-year career to guiding kids into the garden to help them develop a closer relationship with nature. The 4-H Children's Garden was the culmination of all her efforts, and was one of the first gardens of its kind in the United States, providing a model for numerous children's gardens around the country.

As I toured the garden and heard Taylor speak during this year's Symposium, I

realized that many of the ideas I gathered from my initial visit almost a decade ago have proven themselves time and again for me. But also, in the intervening years, developments in the fields of plant science, environmental studies, and behavioral psychology have yielded new approaches as well as data affirming that plants and gardens are effective teaching tools for multidisciplinary learning. And judging from the 2011 Symposium's participants and ac-

tivities, people are finding all sorts of creative ways to use these tools to make a difference in the lives of young people everywhere.

THE GREAT OUTDOORS

The difference that can be made in this regard is significant, according to John Fraser, an architect, conservation psychologist, and educator with the Institute for Learning Innovation. During his keynote address at the Symposium, he explained that digital natives—young people who've grown up with the Internet—have had less exposure to the outdoors than previous generations. As a result, many are discon-

2012 NCYGS in Washington, D.C.

The AHS National Children & Youth Garden Symposium (NCYGS) will celebrate its 20th anniversary in the nation's capital next July. Among the tours that will be offered is a visit to the American Horticultural Society's national headquarters at River Farm in Alexandria, Virginia.

River Farm hosted the very first Symposium in 1993. For the event, a group of small themed children's discovery gardens—some of which were designed by elementary school students—were created on the grounds. Today those gardens have evolved to comprise the Children's Garden, a popular destination for River Farm visitors of all ages.

nected from the natural world around them to an unprecedented degree.

In recent years, teachers, activists, parents, and others have blamed this disconnect for everything from childhood obesity to decreased ability to cope with stress. Additionally, research has shown that young people who become environmental stewards have developed affinity through direct nature experiences. Without those experiences, argues Fraser, in the future less and less value will be placed on the environment and the need to protect it.

Fraser's advice? "Allow kids to solve problems through exploration and collaborative learning and let them discover passion through environmental activism." He

recommends activities such as intergenerational storytelling, sharing poems about nature, and encouraging young children to spend time in creative free play in unstructured natural settings.

GARDENS TO THE RESCUE

Many public gardens have embraced this challenge of building nature awareness and appreciation through spaces specifically designed for their younger visitors. For example, consider the new children's garden that recently opened at Denver Botanic Garden in Colorado, and was

Tyler feels that the term "children's garden" is something of a misnomer for these spaces because they are often designed to encourage interactivity and involve all ages. "Call them family gardens," she suggests. "Gardens designed to welcome the adults who bring the children are more effective at encouraging parents to recreate some of what they see into their own backyard experience."

A FAMILY AFFAIR

Fellows Riverside Gardens in Youngstown, Ohio, embraced this philosophy when it

During the Symposium, I noticed a similar emphasis on engaging all age groups and encouraging interactivity at one of the Symposium's hosts, Frederik Meijer Gardens & Sculpture Park. About 100,000 visitors come through the doors of this 132-acre institution in Grand Rapids every summer, and this year, that included more than 200 NCYGS attendees.

While the garden does feature the Lena Meijer Children's Garden geared specifically for younger visitors, the entire property provides opportunities for multigenerational learning and fun. As Education Director Linda Thompson led us on a tour, she pointed out that families are encouraged to get up close to large sculptures like "Aria" by Alexander Liberman, a multi-ton artwork that's set in the middle of a field. "Kids walk across the grass and lie underneath the piece—we don't rope it off," Thompson explains. "It's completely transforming when you can view art from that perspective in a natural setting."

HARNESSING TECHNOLOGY

Television, computers, and technology in general are oft-cited factors in the lack of nature exposure younger generations are experiencing as compared to previous generations. In his seminal book, *Last Child in the Woods*, Richard Louv sums up this notion by noting, "Americans my age, baby boomers and older, enjoyed a kind of free, natural play that seems, in the era of kid pagers, instant messaging, and Nintendo, like a quaint artifact."

To Norm Lownds, curator of the Michigan 4-H Children's Garden, technology is not the enemy, but rather a powerful tool that can help students explore the natural world. To demonstrate, Lownds debuted his latest project during the pre-symposium workshop at the 4-H garden, another NCYGS host this year. The garden's Seeds of Science program now makes use of iPod Touches to lead students on a scavenger hunt for QR ("quick response") codes throughout the garden. Students then use the devices to scan the codes to connect to more information about plants in the garden.

The "Wonder Wall," a virtual blackboard where students can ask questions like "why do plants need seeds?" has been another successful use of technology that



Children and adults get their hands dirty in the digging area of the Fellows Riverside Garden's Family Garden in Youngstown, Ohio, which encourages hands-on activities for all ages.

the subject of not one, but two of the Symposium's educational sessions.

"Plant and animal species are disappearing at an alarming rate, so the value we place on biodiversity must be elevated," says landscape architect Cindy Tyler, founder and principal of Terra Design Studios in Pittsburgh, Pennsylvania, which designed this garden. Key areas of focus were providing play opportunities in a natural setting, family gardening activities, conservation of natural resources, and the importance of biodiversity.

created its own Family Garden. Inspired by a presentation at the 2003 Symposium, this quarter-acre space was designed as a "place for adults to share their love of plants and gardening experiences with children," explains Anita Wesler, the garden's horticulture educator. "We wanted that sharing to continue after the families left the garden," she adds. A digging area, strawberry patch, and lots of plants that attract pollinators are among the features that encourage all family members to engage in "positive experiences that are all about plants."

Lownds says has helped to sustain his young visitors' interest in plants and science long after their visit to the garden.

Physical change has come to the 4-H Children's Garden, too, with the addition of a new Schoolyard Demonstration Garden that became a reality in 2006. It features an enclosed classroom building with a green roof and has themed gardens that school groups use as outdoor labs.

Witnessing first-hand how effective this garden has been at engaging school groups in plant science, Lownds says, "I hope we're heading to where the school garden is seen as a vital part of school learning, as necessary as a science lab or computer lab." And just as the latest technologies have a place in science and computer labs, the Schoolyard Demonstration Garden makes a strong case that the same should go for school gardens.

PLACES OF BEAUTY

Using gardens as places of learning is all well and good, but in her closing keynote address, Jane Taylor reminded NCYGS participants that gardens also offer beauty—something everyone needs desperately, especially in troubled economic and political times. Holding up a copy of Barbara Cooney's award-winning children's book, *Miss Rumphius*, she urged everyone to follow the main character's example by planting seeds to make the world more beautiful.

Taylor also noted that social critics have been championing the value of nature experiences since the start of the Industrial Revolution in the 19th century. For example, two of her own inspirations, Liberty Hyde Bailey—one of the forefathers of American horticulture—and George Washington Carver—an influential agricultural researcher and inventor—both encouraged youth to actively participate in farming and horticulture.

Given this perspective, today's youth gardening movement has deep roots to build from and a timeless relevance. And while every garden certainly makes the world a little more beautiful, every child who embraces nature through plants and gardens is also a thing of beauty. 🌱

Charlotte Albers is a freelance writer and garden designer based in Burlington, Vermont.

GETTING KIDS GROWING

At Dow Gardens in Midland, Michigan, local families benefit from a 10-week summer community garden program called Growin' Gardeners, where plots are tended by kids age four and up and their families during the growing season. A visit to these gardens, which received the AHS's Jane L. Taylor Award in 2010 for its achievements in inspiring and nurturing children through gardening, was the perfect way to wrap up this year's Symposium.

Siblings Gabe (10), Eva (7) and Cecelia (5) Poprave led the tour, pointing out tiny gnome houses they'd built with twigs between the leafy greens and showing off the scarecrow they'd made with old clothes. They, like the other children in the Growin' Gardeners program, have learned the names and uses of a range of implements—trowels, pruners, and shovels—they might not have used before. They've also learned about insects, the water cycle, and plants through well-organized lesson plans included in the program's spiral-bound handbook.

If you'd like to start an edible garden with some young people in your life, here are some tips gleaned from the Growin' Gardeners program:

GET ORGANIZED Give kids a tote bag to carry water bottles, bug repellent, and other supplies, as well as to stash ripe produce they harvest.

GO ORGANIC Work with nature, using compost to enrich the soil—food web. Experiment with natural ways to deal with pests.

START SMALL For a young gardener, starting small can still have a big effect and is more manageable.

CHOOSE PLANTS KIDS LOVE Easy-to-pick-and-eat cherry tomatoes, banana peppers, radishes, ground cherries, nasturtiums, and sweet-leaved stevia are stand-outs in the Growin' Gardeners plots.

TOOLS TO GET THE JOB DONE Provide real garden tools if possible. Standard-size watering cans, shovels, trowels, and pruners can all be used by older kids with supervision.

RECOGNIZE WEEDS It's never too early to learn to weed out ground ivy, lamb's quarters, garlic mustard, purslane, and other undesirable plants. Photo flash-

cards, flipbooks, or real samples can help with identification.

WATER EVERYWHERE Talk about the water cycle, then let kids cool off with sprinklers on a hot day.

GROWTH CHARTS Make a plant growth chart that includes places to record date sown, transplanted, first flower, and first harvest. Help kids measure and record the height of plants every week, and have kids measure their own height as well.

BUILD A SCARECROW Inexpensive eight-foot furring strips can be easily cut to make a frame. Pre-stitch burlap heads and let kids paint faces, stuff old clothes with straw, and personalize scarecrows with old shoes, colorful wigs or hats, and other accessories.

HARVEST AND EVALUATE Teach kids to recognize signs of maturity by taste tests, visual cues, and calendar tracking. Encourage kids to evaluate what they liked and didn't like and make notes for next year's garden. —C.A.



The Poprave siblings show off the scarecrow they made for their plot at Dow Gardens in Midland, Michigan.

Managing the War Against Weeds

by Scott Aker



WEEDING IS the gardening chore that's never finished. And if you don't keep up with it diligently, weeds are superbly adapted to quickly overwhelm everything you plant. The key to weed management begins with the understanding that you can keep weeds at a tolerable level if you follow a thoughtful and persistent strategy, but you will never eliminate them entirely.

PREVENTING WEEDS IN NEW BEDS

When creating a new bed or garden area, the mistake many novice gardeners make is to simply till up an area and start planting it. If perennial weeds that spread by rhizomes (underground stems)—such as bindweed, bermudagrass, thistle, mugwort, and brome grass—are present, tilling the soil will

cause them to grow more vigorously. Even if these weeds aren't present, the seeds of annual weeds exposed to light by the tilling may quickly overwhelm the new garden.

When you wish to establish a new bed, it's best to start preparations two years before planting. This may seem like

a long time, but this approach will save hours of weeding later, and provides the added benefit of giving you time to improve the soil. There are two primary approaches to getting rid of existing vegetation—applying herbicide or smothering it.

If you go with herbicides, spray existing vegetation in fall, then follow up in spring by spraying anything else that comes up. Then you can till in organic matter and any other soil amendments that are needed. It's best to spend another entire growing season tilling the ground at regular intervals to reduce the number of weed seeds in your new bed. If you choose to use herbicides, always follow the label directions and wear appropriate protective gear.

Alternatively, you can use a smothering layer of black plastic, but for best results you'll have to begin in spring and allow an entire growing season to pass before you begin tilling. Make sure that the plastic fits snugly by burying the edges and placing stones or bricks at intervals over the entire area. Instead of plastic, you can use layers of newspaper under compost or soil you plan to till in later.



Top: Annual weeds such as purslane, which has edible leaves that can be added to salads, should be removed before they set seed. **Right:** Laying down sheets of black plastic is an effective way of smothering weeds when creating a new garden area.

OUSTING WEEDS FROM EXISTING BEDS

If your garden has bare spaces between plants, and you don't plan to grow anything by sowing seed directly into the garden, you can use a pre-emergent herbicide on these areas. Pre-emergents are generally applied in early spring, but if you live where winters are mild, an application in the fall to prevent germination of winter annual weeds may be a good idea.

If grasses have invaded a groundcover bed or perennial bed, fall is the time to consider using a selective grass herbicide to remove the grass. Read the label carefully to be sure that the grass killer won't harm your groundcover or perennials. Prevent the problem by installing edging or another type of barrier to invading grass rhizomes.

WOODY WEEDS

Fall is the perfect time to combat woody invasive plants because throughout most of the country, there is more soil moisture as temperatures fall. This means that taprooted perennials and seedlings of mulberry, bush honeysuckle, Norway maple, and tree of heaven may be more easily pulled. With the help of a weed wrench, you may even be able to uproot larger saplings that are more than a year old.

Late summer and early autumn are also prime time for use of herbicides against woody weeds. At this time of year, plants are storing carbohydrates. Systemic herbicides that are taken in by the leaves will be moved efficiently throughout the plant, resulting in greater mortality. To keep herbicide use to a minimum, I recommend applying an herbicide containing triclopyr to the freshly cut stumps of woody weeds. Apply the herbicide with a paintbrush dedicated to this use only.

ORGANIC WEED CONTROL

An organic approach to weed control works best in a small garden. If you are good with a hoe, and can spend time in the garden on a regular basis, you can stay on top of most weed problems. Mulch is also a great ally in your war on weeds. Focus your effort on removing weeds early when they are small and easy to pull, and be sure to prevent them going to seed. Maintain a consistent two inches of mulch on bare areas to inhibit weed growth.

Gardening Q&A with Scott Aker

CANNA VIRUSES

I have grown cannas for many years, digging the rhizomes up in the fall when the tops freeze and storing them in my basement. I have heard about virus problems in cannas, and one of the new cannas I planted this spring did not grow vigorously. How can I tell if it is infected? Can the virus spread to my other cannas?

Although several viruses may infect cannas, the most debilitating is the canna yellow streak virus. The symptoms are areas of lighter green tissue between the main veins of the leaves. Initially, these may be round spots, or short elongated streaks, but eventually the entire area between veins may become lighter in color. Usually the youngest leaves are the most damaged. The streaks may become brown and dry as the tissue dies. Don't confuse the damage with that of scorch caused by drought or hot weather, in which case the brown areas will be around the margins of the oldest leaves. Flowers of affected plants may have blotches of lighter colored tissue.

It appears that the main mode of dispersal of this virus is through division of infected plants, so it is unlikely that the virus has spread to the rest of your cannas.

SHEDDING SPRUCE

I live in Iowa and I have a lovely Colorado blue spruce in my front yard that lost most of the needles on the bottom third of the tree this spring. There is just a little growth at the end of each branch. Should I cut the lower branches off?



Rhizosphaera needle cast is the most likely cause of the needle loss. You can confirm this by looking at some of the dead needles with a hand lens—they will have rows of black dots on them [see photo, left] that are the fruiting bodies of *Rhizosphaera*, the fungus that causes the disease. Don't do any pruning right now. Removal of lower branches on spruces disfigures them and may stress them by allowing sun and wind to dry out the soil around the trunk of the tree. Apply a fungicide such as Daconil in May of next year and again a month later, spraying the bottom half of the tree. Anything you can do to promote better air circulation around the tree is also helpful, since it will allow the foliage to dry more quickly after rain and limit the spread of the fungus.

—S.A.

E-mail your gardening questions to Scott Aker at saker@ahs.org.

It's a great idea to plant a cover crop such as annual ryegrass in the vegetable garden as soon as you have cleared it of the last fall crops. It will inhibit the growth of a variety of weeds and will add organic matter to the soil when tilled under in spring.

Organic herbicides work well on young weeds, but aren't generally effective against established perennial weeds, unfortunately. Also be mindful that even organic herbicides require careful handling. Concentrated herbicidal soap requires the use of eye protection and care should be taken not to get it on your skin. The va-

por of strong vinegar solutions for weed control are harmful to the lungs, so wear a respirator when using them.

Remember that if conditions favor weedy species, they will constantly reappear. For example, poorly drained soil will inevitably support the growth of nutsedge. So as the growing season draws to a close, consider how you can make life tougher for the weeds and easier on yourself. 🌱

Scott Aker is a Washington, D.C.-based horticulturist who wrote the "Digging In" garden column for The Washington Post for a decade.

Growing Great Kohlrabi

by Kris Wetherbee



Because it is heat tolerant, 'Kolibri' is a good kohlrabi variety to plant for late-season harvest.

THE FIRST TIME I grew kohlrabi, more than 20 years ago, I was surprised when the edible part of the plant, which is often referred to as the “bulb,” formed just above the soil surface. In fact, it’s not a bulb at all but a swollen, globe-shaped portion of the stem.

Kohlrabi (*Brassica oleracea* var. *gongylodes*) is a cabbage relative that looks somewhat like a pale green or purple-tinted, aboveground turnip with a rosette of edible, blue-green leaves radiating from it in all directions. Its flavor is sweeter and milder than either cabbage or turnip, sometimes described as a cross between a cucumber and a young radish or mild baby turnip. Others liken both its flavor and texture to that of a water chestnut.

No matter how you describe the flavor, kohlrabi is not only delicious, but also nutritious; it’s a great source of dietary fiber, Vitamins A and C, and the B-complex group of vitamins. Plus its delightfully unusual appearance makes it an eye-catching plant to include in your garden.

GROWING GUIDELINES

Kohlrabi grows well in USDA Hardiness Zones 3 and warmer and is arguably one of the hardiest of garden vegetables, tolerating temperatures down to about 10 degrees Fahrenheit. In fact, the bulbs are especially sweet and succulent after they have been “kissed” by frost in the fall. This cool-season vegetable is grown as a spring or fall crop in northern regions and during fall and winter in the South. In addition to low temperatures, other requirements for a successful kohlrabi crop are full sun, plenty of water, and well-drained, fertile soil, high in organic matter such as compost.

Like cabbage, kohlrabi is a heavy feeder, so depending on the fertility of your soil, you may want to add nitrogen-rich amendments such as blood meal, fish meal, or cottonseed meal. This will help

Planting Basics

GETTING STARTED Sow seeds a quarter- to a half-inch deep and about one to two inches apart as soon as the soil can be worked in spring. For fall harvests, sow seeds about four to six weeks before the first fall frost.

TRANSPLANTS For an early start, sow seeds indoors four to six weeks before you plan to transplant in the garden. Timing will depend on whether or not you use row covers as well as the intensity of your frosts. Kohlrabi can withstand light frosts, though spring transplants should be hardened off before putting them in the ground. In general, transplants can go in the ground one to four weeks before your last spring frost date, or two to eight weeks before your first fall/winter frost date.

SPACING Thin seedlings to—or space transplants—four to eight inches apart, depending on the variety, with rows spaced 12 to 18 inches apart. For raised-bed or wide-row gardening, thin seedlings to—or space transplants—four to eight inches apart in all directions, depending on variety.

DAYS TO MATURITY 40 to 80 days from direct seeding, depending on the variety and the season. When using transplants, subtract 14 to 21 days.

promote the rapid growth that's needed to ensure best production and eating quality.

If your soil fertility is particularly poor, give plants additional feedings of liquid fertilizer such as fish emulsion or a sidedressing of aged compost or manure during the growing season. This is typically done after they begin developing leaves and sometimes when they start forming “bulbs.”

Consistent moisture—about one inch or more per week—will encourage rapid development, resulting in a sweet, crisp globe. The soil should be moisture-retentive yet free-draining. Digging in plenty of organic matter before planting will help with both. Mulching beds with compost, shredded leaves, or straw once the plants poke through will help keep your soil more evenly moist, too.

PEST AND DISEASE PREVENTION

Kohlrabi is less prone to pests and dis-



Early-maturing ‘Winner’, left, and large ‘Kossak’, right, are two green-skinned varieties.

eases than other members of the cabbage clan. Its most common pests include cabbage worms and loopers. These destructive caterpillars are best controlled by introducing parasitic trichogramma wasps to the garden or by applying *Bacillus thuringiensis* (Bt)—a naturally-occurring, non-toxic bacterium—to the plants. Most disease problems can be avoided by providing proper growing conditions as previously described.

RECOMMENDED VARIETIES

There are basically two types of kohlrabi—those with pale green skins and those with purple skins. The flesh of both types is white.

One extra-early variety is ‘Eder’ (38 days). Other good early-maturing choices include ‘Winner’ (45 days), ‘Kongo’ (48 to 50 days), and ‘Grand Duke’ (45 to 50 days)—a 1979 All-America Selections Winner. Two heirlooms worth growing

are ‘Early White Vienna’ (50 days) and ‘Early Purple Vienna’ (55 days). ‘Kolibri’ (45 to 55 days) is a deep purple-skinned, heat-tolerant variety and one of the best for a late-season harvest. ‘Kossak’ (60 to 80 days) and ‘Superschmelz’ (60 days) are tasty green-skinned varieties noted for their size and long storage capacity. And if growing a super-sized variety is what you’re after, the heirloom ‘Gigante’, which can grow to 10 inches in diameter, is sure to impress.

ENJOYING THE HARVEST

For the best-tasting kohlrabi, harvest when the bulbs are young and tender, about one-and-a-half to three inches in diameter for spring crops, and up to four to five inches in diameter for fall crops. Large varieties such as ‘Kossak’ and ‘Gigante’ may grow eight to 10 inches in diameter without becoming woody. To harvest, simply cut the stem about one inch below the bulb.

Kohlrabi can be peeled and eaten raw for snacks, accompanied with a dip, chopped into a salad, or shredded into coleslaw. Or after peeling, they can be steamed, sautéed, roasted, or added to a stir-fry. Reserve the young, tender leaves and leafstalks for salads or as a substitute for spinach in any dish. When grown in the right conditions, this is one vegetable where nothing goes to waste!

Freelance garden writer Kris Wetherbee lives in Oakland, Oregon.

Sources

Harris Seeds, Rochester, NY. (877) 892-9197. www.harriseseeds.com.

Johnny's Selected Seeds, Winslow, ME. (877) 564-6697. www.johnnyseeds.com.

Reimer Seeds, Mount Holly, NC. www.reimerseeds.com.

Territorial Seed Company, Cottage Grove, OR. (800) 626-0866. www.territorialseed.com.

Horticultural News and Research Important to American Gardeners

TREE-DAMAGING HERBICIDE BANNED

Sometimes a miracle of science can turn into a nightmare, as in the case of a broadleaf herbicide from DuPont that came on the market this past spring. Imprelis™ proved effective against difficult-to-control weeds in turfgrass, even at low doses. But as homeowners, lawn care professionals, and others soon discovered, the product also appears to damage and kill certain tree species.



The broadleaf herbicide Imprelis has been widely implicated in damage to conifers, like this one exhibiting browning needles.

On August 11, the Environmental Protection Agency (EPA) banned sale of the herbicide, a week after DuPont had suspended product sales pending further investigation. Imprelis had undergone testing last fall prior to release, and because it did not appear to damage trees then, the EPA approved it on a trial basis. However, after the product was made available for application in spring, Norway spruces, white pines, and other evergreen conifers began exhibiting yellow or browning needles and twisted branch tips, most notably on current year's growth. Some affected trees declined and eventually died.

"Trees seem to react differently to the herbicide," says Pete Landschoot, a turf grass specialist with the Penn State Extension Service. "Some with extensive damage, some with just a little damage, and some with no damage at all."

In a statement, the EPA announced it is "investigating whether this is the result of product misuse, inadequate warnings and use directions on the product's label, persistence in the soil and plant material, uptake of the product through root systems and absorbed into the plant tissue, environmental factors, potential runoff issues, and other causes."

If you suspect Imprelis damage to your trees, DuPont has set up a website (www.imprelis-facts.com) and a hotline, (866) 796-4783, with information on how to detect and care for damaged trees. For more information, or to report a damaged tree, you can also contact your local Cooperative Extension service.

POLLINATOR IMPACT ON NUTRITION

As a kid, how many times were you told to eat your veggies because they're good for you? Just how many nutrients vegetables and fruits contribute to our diets was the focus of a study, recently published in the scientific journal *PLoS One*, that investigated the potential impact of declining global pollinator populations would have on the human diet.



Declining pollinator populations could affect yields of nutrient-rich crops such as tomatoes.

The study determined that produce with the highest vitamin and mineral values rely on pollination by bees and other insects. In terms of specific nutrients, 90 percent of Vitamin C, 50 percent of calcium and fluoride, and most forms of Vitamins A and E available in the global food supply come from pollinator-dependent crops. Additionally, dietary lipids such as carotenoids, which reduce the risks for cancer and heart disease, are derived almost entirely from crops like tomatoes, squash, and carrots.

While some of these crops may also self- or wind-pollinate to a certain extent, the research team estimates that without pollinators, 40 percent of the essential nutrients provided by fruits and vegetables would be lost. These findings are yet another indication of the vital role pollinators serve, and are particularly worrying given the continuing decline of both domesticated and wild bee populations.

NO-SWEAT BULB PLANTING

Bulbs are big business in Holland, and Dutch bulb producers want to keep it that way. Enter Dig.Drop.Done™, a new educational campaign to "introduce flowering bulbs to a new generation of potential gardeners and demystify the bulb-growing process, while reminding avid gardeners of the low-maintenance, returning beauty of bulbs." Its message—that enjoying beautiful bulbs is as easy as "dig, drop, done"—comes through loud and clear on its website (www.digdropdone.com), which is filled with tips, photos, and more.

But if even digging and dropping seems like too much work, new research from Cornell University's Flower Bulb Research Program (FBRP) shows that there's an easier way. A three-year trial of "top-planted" tulips showed that the bulbs could do quite well if simply placed on the surface of tilled soil and covered with a few inches of mulch.

"We were quite amazed that even these relatively shallow coverings were just fine



When top-planted—simply covered in mulch rather than buried in soil—tulips like these performed surprisingly well in a three-year Cornell University trial.

in USDA Hardiness Zone 5,” says William Miller, research director of FBRP. “I’m not saying it’s better than planting them deeper, but we’ve had great results.” Miller acknowledges that results could vary in other regions, and also points out that these trials were conducted within a deer fence to mitigate wildlife interference.

Visit www.flowerbulbs.cornell.edu for more information about the trial. (Editor’s note: For best results, we still recommend planting tulip bulbs the old-fashioned way).

TREE GENES “REMEMBER” THEIR ROOTS

Say you plant a tree from your local nurs-

ery this fall, and then you buy its genetically identical twin from a mail-order nursery in a different region and plant it nearby. You’d expect the saplings to respond the same way to challenges such as drought, cold spells, and disease, right? The “nursery effect” theory says they won’t, and a new study out of the University of Toronto published in the *Proceedings of the National Academy of Sciences* proves it.

“This has been a long-standing question,” says Malcolm Campbell, a plant geneticist and co-author of the study. “Does where they’re from influence how they’ll react in the environment?” To find out, the researchers acquired genetically identical clones of three different varieties of poplar trees from several Canadian nurseries representing a range of climates and environments. Then, they subjected half the trees to drought.

Of the three varieties, the youngest—meaning the one that had been in existence for fewer years than the others—responded the same way to drought stress no matter where it had been grown. However, the other two older varieties

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displayed significant differences depending on their provenance.

Genetic analysis revealed that the trees retained “a molecular memory of where they were from” and passed that memory on to subsequent clones. The results also revealed that time plays a role, similar to studies of human twins that have shown a greater degree of genetic differences later in life, as opposed to that in young children. With this research, Campbell foresees a future where trees can be genetically “taught” to withstand environmental stresses unique to their area. For more information about this study, visit www.pnas.org/content/108/30/12521.

FRANKLIN CLEARED OF BLAME FOR INTRODUCING INVASIVE TALLOW TREE

Before people realized that species introduced from other countries could become invasive, all kinds of plants were brought into the United States from far-off places, often in hopes of solving existing problems. Such was the case when Ben Franklin sent seeds of Chinese tallow tree (*Sapium sebiferum*) in 1792 to a friend in Georgia to test out as a possible cash crop. The tree's waxy seeds produce useful oil, but never caught on as a profitable commodity.

This didn't stop tallow trees from proliferating in their new home to the point of being labeled a noxious weed in Florida, Mississippi, Alabama, Louisiana, and



Texas. “It's an enormous problem for coastal prairies,” says Evan Siemann, a plant biologist at Rice University in Houston, Texas, because this fast-growing tree shades out native species. Could it be that America's beloved diplomat and scientist inadvertently unleashed this scourge?

For once, DNA evidence was conclusive regarding the doings of a founding father. Siemann and a team of researchers discovered that descendants from Franklin's seeds now only occupy a small area in Georgia and South Carolina. More importantly, genetic testing indicates this



Left: A large tallow tree in the front yard of a residence near Houston, Texas. **Above:** Evan Siemann stands in a tallow tree grove with a closer view of the tree's leaves and seeds.

population originated from a different area in China than the population overrunning the Gulf Coast, likely brought in as part of a Federal government project in the early 1900s.

The findings, published in the July 2011 issue of the *American Journal of Botany*, clear Franklin's name, but also provide insight into how exotic species adapt and become invasive in new environments. For example, the study revealed that the U.S. tallow trees grow about 30 percent faster than their Chinese kin and don't bother producing the same chemical defenses because the tree's natural Chinese pests don't live in the U.S. Interestingly, when U.S. trees were grown in China, they still outcompeted their Chinese counterparts despite suffering far more damage from native pests. The researchers hope that better understanding such genetic variations will lead to better control measures for invasives.

PHOTOSYNTHETIC GLOW SEEN FROM SPACE

As plants photosynthesize, they emit a reddish glow or fluorescence. We might not be able to see it, but a light-measuring device called a spectrometer can. Put one of these on board a satellite and the world lights up. NASA has used this new spectrometer data to create the first world maps showing land-plant fluorescence. What makes this development exciting is that it provides a much better real-time picture of global plant health than previous satellite-derived information that was based on light reflected off plants rather than light they emit.

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PEOPLE and PLACES in the NEWS

New Director at Oklahoma Centennial Botanical Garden

This past April, the Oklahoma Centennial Botanical Garden (OCBG) welcomed Todd Lasseigne as its new executive director. Comprising 170 acres near Tulsa,

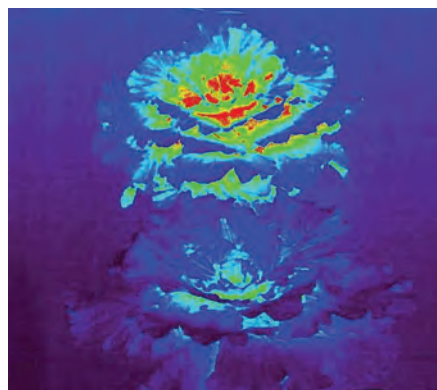


Todd Lasseigne

this relatively young garden broke ground in 2007. Previously the executive director and creator of the Paul J. Ciener Botanical Garden in Kernersville, North Carolina, Lasseigne will lead the continued development of OCBG.

"Todd's excellent relationships with public garden and horticulture professionals throughout the United States, Europe, and Japan will be of tremendous importance to us," says Burt Holmes, the garden's board chairman.

OCBG currently features a temporary visitor center and a seven-acre artificial lake with a walking trail around it. A total of 60 acres is allotted for gardens and facilities, with the rest of the property remaining natural forest and prairie. For more details, visit www.ocbc.org.



Where the human eye sees a green plant, a spectrometer shows a glow from photosynthesizing leaves, as demonstrated by these photographs of two cabbage plants.

"With chlorophyll fluorescence, we should be able to tell immediately if plants are under environmental stress—before outward signs of browning or yellowing of leaves become visible," says Elizabeth Middleton, a biologist at the Goddard Space Flight Center in Maryland.

The hope is that such maps will help scientists to better monitor global plant health and detect problems such as drought and disease sooner. For more information, visit www.nasa.gov.

GARDENS FOR BETTER HEALTH

Let's Move!, a multi-pronged initiative launched by First Lady Michelle Obama, aims to "raise a healthier generation of kids" by encouraging better eating habits and more physical activity. This initiative may be coming to a garden near you, thanks to a collaborative effort between

the Institute of Museums and Library Sciences, the American Public Gardens Association, and several related associations.

"Public gardens provide families with indoor and outdoor spaces where they can engage in physical activity, interact with nature, and learn about the important role of plants in a healthy lifestyle," says Dan Stark, executive director of the American Public Gardens Association. "We hope to inspire a generation of healthy, active gardeners."

As many as 2,000 public gardens and museums across the country are expected to participate by developing educational exhibits and programs that encourage healthier lifestyles. To learn more, visit www.letsmove.gov.

Written by Helen Thompson, editorial intern for The American Gardener.

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4 SEEDLINGS	TO PLANT THEM ALL SAFELY, UNIFORMLY — and GROWING MORE STRONGLY	
5 TREES	TO GET "TWO YEARS' GROWTH IN ONE?"	
6 FRUITING	For EARLIER, HEAVIER, BEARING?	
7 BULBS	TO START THEM VIGOROUSLY, Beating Soil-rot, Hastening Better BLOOMING	
8 SEEDS	To Help GERMINATION Percentage and SPEED EARLIER, BETTER YIELDS, including Vegetables	
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GREEN GARAGE® by Rita Pelczar

With so many tools and products to choose from, what's a gardener to do to select those that will make indoor and outdoor chores easier, safer, and more efficient? How about getting the scoop from another gardener? Contributing editor Rita Pelczar reports on products she has found useful or innovative in her garden, with an emphasis on earth-friendly products and supplies. Here are a few products you may want to stock in your own "green garage" or garden shed.

KEEPING TRACK OF YOUR GARDENS

Keeping better garden records was among my 2011 New Year's resolutions. I've learned the hard way that trusting my memory with the details of planting dates, cultivar names, plant sources, and fertilizer application dates is a big mistake. My habit heretofore has been to jot such information on a handy scrap of paper slipped into a pocket, which I usually remember after it has gone through the wash. Or I scribble notes on old seed packs that I stash along with plant labels in an empty flowerpot for later retrieval. These techniques are better than no records at all, but not by much.



Fortunately a few new products are helping me document my gardening efforts in a more orderly manner. The **GardenScribe Plant Organizer** (www.gardenscribe.com) is a three-ring binder with a mission. Each "plant detail page" includes spaces for botanical and common names, date planted, location, and source. Boxes can be marked to indicate plant characteristics and requirements, and space is provided for notes on maintenance, fertilization, pests, and diseases.

I find the four-by-six-inch photo sleeve into which you can slip a photo or a label, tag, or seed package particularly nifty. If I don't have time to record all the pertinent information while I'm working in the garden, I can slip the tag into the sleeve, jot down the date, and return to the page later to fill in the details. The GardenScribe also includes graph paper and a landscape design template tool, so you can develop garden designs or sketch your garden layouts.

The **Moleskine Gardening Journal** (www.moleskine.com) has a less detailed format than the GardenScribe, which will appeal to some gardeners. The compact journal is divided into five sections: plants; pots, tools, etc.; design; visits; and

garden log. Pages for each section suggest the kind of information you might want to record. Blank tabs and pages allow you to tailor the journal to meet your needs.



If you enjoy entering data into a computer after a day in the garden, you may prefer the **Garden Tracker** (www.gardentracker.com), a software system that helps you keep your records organized and accessible. You can also add photos and videos so you can observe your garden's progress over the years.

KEEPING TRACK OF RAINFALL

An accurate record of rainfall is important for determining when it's time to water. But I live in the mountains where rainfall varies widely within the area covered by my local paper and television stations. A rain gauge lets me know just how much rain falls in my garden.

The **Professional Rain Gauge** (www.windandweather.com) works in all kinds of weather and is the most accurate rain gauge I have used. It funnels rain into a central cylinder that measures the accumulation to the nearest 100th of an inch. The central cylinder only holds an inch of rain, so if your precipitation exceeds an inch at one time, the excess flows into the outer cylinder. To measure the total, simply empty the inch from the central cylinder, pour in the excess from the outer cylinder and add the amounts. In winter, use only the outer cylinder to collect freezing rain, snow, sleet, or hail and bring it indoors to melt. Then measure by pouring it into the central cylinder.

As with any rain gauge, mount it away from buildings and trees. Mine is anchored four feet high on a four-by-four-inch post, located, appropriately, in my rain garden.



A contributing editor for The American Gardener, Rita Pelczar lives in North Carolina. She is the editor-in-chief of the AHS's Homegrown Harvest (Mitchell Beazley/Octopus USA, 2010).



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Industrious Tree Squirrels

by Helen Thompson

ONE SURE SIGN of autumn is the sight of squirrels busily stocking up on acorns for winter. Their antics strike some people as amusing and endearing, but these rascally rodents often run afoul of gardeners with all that industrious foraging and digging. The artful dodgers of the garden world, they won't hesitate to help themselves to backyard berries, birdseed, or bulbs, either. Though they might seem like pests at times, squirrels are fascinating creatures that have an important part to play in urban ecologies as well as natural ecosystems.

When you spot a squirrel—perhaps hanging upside down from a birdfeeder in your backyard—what you are most likely looking at is a species of tree squirrel. This broad term includes eastern gray squirrels (*Sciurus carolinensis*) along the East Coast and west to the Great Plains, western gray squirrels (*S. griseus*) along the West Coast from southern California north to Canada, fox squirrels (*S. niger*) throughout the continent except New England, and northern and southern flying squirrels (*Glaucomys sabrinus* and *G. volans*).

NUTTY BEHAVIOR

Tree squirrels are not picky eaters. In addition to helping themselves to birdseed, they live on acorns and other tree nuts, berries, seeds, and, occasionally, bird eggs. Throughout the fall and early winter, gray squirrels “scatter hoard” by burying food in many shallow caches or holes in the ground. In contrast, American red squirrels (*Tamiasciurus hudsonicus*), predominantly found in coniferous forests, are larder hoarders, meaning they store

all of their food in a single location, and defend it aggressively.

To find their caches later, “squirrels use their excellent sense of smell and even visual cues,” explains Michael Steele, a professor of biology at Wilkes Universi-

then burying it at another site,” says Steele. For this reason, tree squirrels are always keeping an eye on where their caches are buried and where other squirrels might be burying their own.

Because of this caching behavior, squirrels are important players in tree-seed dispersal. One squirrel buries anywhere from 1,000 to 10,000 seeds in one season. Ecologists have discovered that the ones that don't get eaten have a better chance of germinating than if they had not been buried. In some areas, squirrels are the main seed-dispersal agents for particular tree species, including oaks, hickories, and walnuts. After forest fires, squirrels help re-populate burned areas with deciduous trees and grasses. Similarly, it is believed that squirrels were largely responsible for re-establishing deciduous forests the last time the glaciers receded, about 10,000 years ago.

SQUIRRELS IN THE GARDEN

Squirrels have adapted remarkably well to urban environments, taking advantage of abundant food sources and fewer predators—aside from the occasional hawk or fox. They can also make their homes in anything that's remotely treelike. “In that respect,” says Steve Sullivan, senior curator of urban ecology at the Chicago Academy of Science's Peggy Notebaert Nature Museum, “they can successfully exist without many major modifications on our part.”

Given their adaptability, it's no wonder that squirrels make themselves at home in our gardens. Here, there are birdhouses to raid, feeders to clean out, shallowly planted bulbs to pilfer, and fruits, veggies, flowers, and even the occasional piece of lawn



A fox squirrel snacks on a black walnut.

ty in Wilkes-Barre, Pennsylvania. It's not clear how long squirrels can remember where their caches are, but they sometimes return five or six times to the site in one season to check if seeds have gone bad or have been stolen.

To avoid theft by other squirrels, “they engage in a form of deceptive behavior—thought to be generally unique to primates—by excavating a cache site and

Resources

Squirrels: The Animal Answer Guide by Richard W. Thorington and Katie Ferrell. Johns Hopkins University Press, Baltimore, Maryland, 2008.

Wild Neighbors: The Humane Approach to Living with Wildlife by the Humane Society of the United States. Fulcrum Publishing, Golden, Colorado, 1997.

furniture to nibble. “We need to look at the world through the eyes of a squirrel,” says Sullivan. “To them, humans are either a vending machine or a threat, and there’s no middle ground.”

If you’d rather not be a squirrel vending machine, there are a number of ways to foil their foraging. For example, if you’re planting bulbs this fall, Sullivan suggests turning up a lot of soil in the area to mask the smell of where individual bulbs are buried. Coating bulbs and plants in bad-tasting or malodorous substances such as cayenne pepper, garlic, or blood meal will discour-



A birdbath in a garden serves as a convenient drinking spot for this urban tree squirrel.

age squirrels from taking more than a bite or two if they do find your plantings. Sullivan favors planting daffodils and crocuses, which squirrels find less tasty because they are lower in protein than tulips. You can also cover bulb plantings with chicken wire or mesh or plant bulbs in wire cages.

Sullivan has found that purposely feeding squirrels can also be an effective strategy for reducing unwanted pilfering.

For instance, when planting bulbs in his backyard, he puts out a plate of peanuts in the front yard so that they go for the easy food instead.

When it comes to birdfeeders, there are a number of “squirrel-proof” models. Some deliver an electric shock to any non-avian visitors, while others feature flipping perches or other devices to create obstacles. However, the key is to constantly change up your strategy to stay one step ahead of these crafty bandits.

One thing that Sullivan says *doesn’t* work are squirrel traps. Purported to be humane, catching and relocating the animal to a completely unfamiliar environment in most cases actually subjects it to a slow death either by predation or the elements.

Love them or hate them, squirrels are nothing if not industrious. Whether they are scaling a brick wall, leaping between trees, or literally bending over backwards to get at a food source, these acrobatic animals let little stand in their way. 🐿

Helen Thompson is an editorial intern for The American Gardener.

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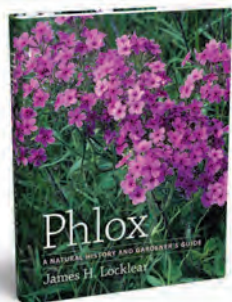
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Recommendations for Your Gardening Library

Phlox: A Natural History and Gardener's Guide

James H. Locklear. Timber Press, Portland, Oregon, 2011. 316 pages. Publisher's price, hardcover: \$49.95.

ABUNDANT FRAGRANT flowers in a rainbow of colors and easy care have endeared phlox to generations of gardeners. This largely American genus has yielded popular plants grown worldwide. Yet, not since Edgar T. Wherry's 1955 monograph has there been a comprehensive treatment of all the species. Enter Jim Locklear, botanist, researcher, public garden administrator, and author of *Phlox: A Natural History and Gardener's Guide*.



Locklear's passion for flora of the Great Plains spans decades. As director of the Nebraska Statewide Arboretum for more than 14 years and now as director of conservation at Lauritzen Gardens in Omaha, Nebraska, he has researched and introduced many American native plants. Preeminent among them is the genus *Phlox*.

Part I presents a botanical and historical overview of the genus. With lyrical prose, Locklear traces the journey of phlox species from discovery in America to early cultivation and hybridization in European gardens and nurseries, where they were considered prized rarities. This section concludes with a comprehensive and easy-to-use key that differentiates the species.

The bulk of the book is devoted to detailed alphabetical descriptions of the 61 species currently recognized by botanists. Each species entry includes introductory remarks filled with personal anecdotes. Detailed botanical descriptions make the book a useful reference for distinguishing species in the field or herbarium. Reading them made me feel like I was looking over Locklear's shoulder at the plants as we walked through fields, meadows, and forests. Notes on cultivation often include additional insights into the cultural history of the plant at home and abroad.

If I had to cite shortcomings, one would be that only about half of the species are illustrated. Additional photos of species that are frequently confused in the nursery trade would have been a helpful aid to proper identification. Also, the book doesn't include comprehensive cultivar lists and descriptions.

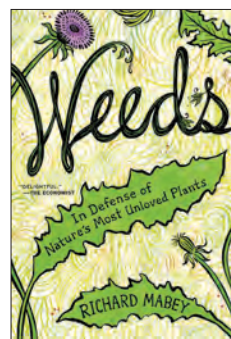
Whether you are seeking cultivation tips or looking to differentiate between alpine species, this book is definitely the go-to guide for this diverse and beloved genus. —C. Colston Burrell

An award-winning author, photographer, and landscape designer, C. Colston Burrell gardens in Free Union, Virginia.

Weeds: In Defense of Nature's Most Unloved Plants

Richard Mabey. HarperCollins Publishers, New York, New York, 2010. 324 pages. Publisher's price, hardcover: \$25.99.

RICHARD MABEY is one of Britain's foremost nature writers, and even a quick glance at *Weeds* shows why. It is, at once, erudite, witty, insightful, and full of allusions to the many facets of human knowledge: history, botany, agriculture, literature, and so much more. That he uses common weeds as the kernels around which to accrete his stores of information is astonishing.



"Weeds are mobile, prolific, genetically diverse," Mabey writes. "They are unfussy about where they live, adapt quickly to environmental stress, use multiple strategies for getting their

own way. It's curious that it took so long for us to realize that the species they most resemble is us."

Of course, we gardeners are on the most intimate terms with weeds. We attempt to draw a firm line between "nature and culture, wildness and domestication," Mabey writes. Weeds belong to nature and wildness, and relentlessly invade our gardens of cultivated plants. He points out the fine irony that "weeds are found most abundantly where there is the most weeding; that notion ought to make us question whether the weeding encourages the weeds as much as vice versa."

Mabey praises weeds as the "progenitors of all the plants that keep us alive," for before cultivation, selection, and hybridization, our vegetables, herbs, and low-growing fruits existed as wild weeds and kept the human race going. He reflects on the theory that agriculture developed in the Fertile Crescent region of the Middle East when gatherers brought home the seeds of the weedy emmer grass that then sprang up around settlements. Eventually, through selection, this yielded our modern wheat.

Chapters are devoted to delicious information that springs from his musings about specific weeds, such as thoroughwort, love-in-idleness, and gallant-soldier. These are British common names, so American readers may want to refer to the book's glossary of plant names that at least gives botanical names.

The best testimonial I can give to this excellent book is that within 10 minutes of finishing it, I found myself in a roadside patch of wild weeds, seeing them as I had never seen them before.

—Jeff Cox

Jeff Cox is a contributing editor of Horticulture magazine and has written 15 books on gardening. He lives in Kenwood, California.

The Undaunted Garden (Second Edition)

Lauren Springer Ogden. Fulcrum Publishing, Golden, Colorado, 2010. 304 pages. Publisher's price, hardcover: \$34.95.

COLORADO'S RESIDENT gardening rock star Lauren Springer Ogden published the first edition of the *Undaunted Garden* in 1994. At the time, I was a librarian at the Denver Botanic Gardens, and even then, I was in awe of both her writing and gardening prowess. It's no wonder this book became a bestseller and was named one of the 75 best gardening books of the prior 75 years by the American Horticultural Society in 1997. Now, the second, expanded edition of the *Undaunted Garden*



builds on this strong foundation, encompassing Springer Ogden's continued experimentation with plants, gardens, and garden design over the intervening years.

While much of the book is based on Springer Ogden's gardening experiences in Colorado, its tenets can still be applied in temperate, Mediterranean, and really any other climates. Springer Ogden's exceptional breadth of knowledge results from a childhood and education in Pennsylvania, gardening in Ireland, having three different gardens in Colorado, as well as one in Texas she shares with husband and fellow garden writer Scott Ogden. Yet,

no matter where you live, this book will help you to become more in tune with your soil, your microclimates, and your water resources. It will also help you to think about available plants in terms of the qualities that make them resilient garden candidates for your area. And Springer Ogden's color photographs throughout will provide further inspiration and guidance.

If you're looking for specific plant suggestions, you'll find that, too. In the final chapter of the book, Springer Ogden describes 100 "indispensably undaunted plants," all of which are new to this edition. She notes that the plants she highlighted in the first edition have become more commonplace, so in hopes of helping to popularize even more tough-but-beautiful plants, she writes eloquently about this new group that has proven itself in her gardens.

Many of the plants are adaptable to a wide range of regions, but she points out that "gardening is more than just choosing good plants." She also encourages readers to allow the natural landscape to "inspire an echo of some sort in the garden microcosm" in terms of colors, textures, shapes, and vistas.

With all the current interest in edibles, I find this book a refreshing and lush respite from the food garden craze. It's a poignant reminder that purely ornamental gardens and plants can be fantastically rewarding in their own right.

—Susan C. Eubank

Susan C. Eubank is the arboretum librarian at the Los Angeles County Arboretum & Botanic Garden.



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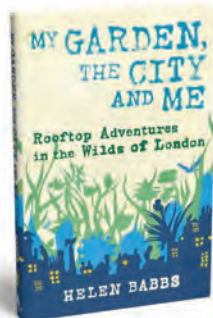
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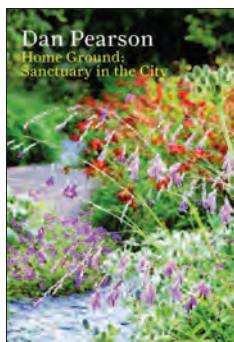
GARDENER'S BOOKS

Urban Gardening

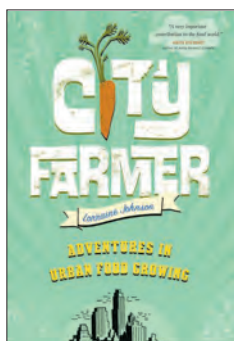
TO MOST PEOPLE, cities are synonymous with skyscrapers, traffic, and lots of concrete. However, they can also be full of lush, colorful, bountiful gardens. Space may be in shorter supply in urban environments, but that needn't be a limiting factor. As the following books attest, even the toughest challenges of gardening in cities can be overcome with a dash of ingenuity and a pinch of persistence. Whether you'd like to make use of a plot in a community garden, turn your backyard into a peaceful, green retreat, or grow fresh produce on a balcony, the rewards are well worth the effort.



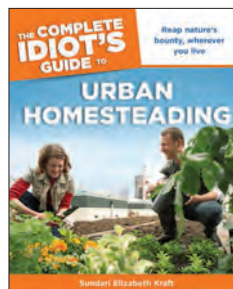
My Garden, the City, and Me (Timber Press, 2011, \$18.95) will certainly resonate with young urbanites or horticultural newbies. Helen Babbs chronicles her first year of gardening as a 20-something Londoner, recounting with humor and humility her endeavors to create an “organic, wildlife-friendly, and edible” rooftop garden in a “landscape that is unrelentingly urban.” Almost diarylike in style, this insightful book might inspire you to start a rooftop garden of your own.



Another London-dweller tells his tale in *Home Ground: Sanctuary in the City* (Octopus Books, 2011, \$29.99). Instead of a food garden, landscape designer and author Dan Pearson spent a year creating a tranquil, beautiful space to escape the frenetic city scene all around him. Amid his anecdotes and garden descriptions, Pearson interjects design ideas, plant recommendations, and other gardening tips that can be applied to any urban situation. The photographs alone make this book a pleasure to peruse.



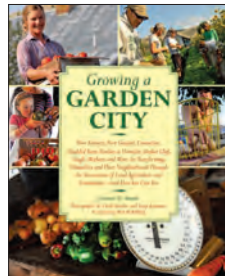
In *City Farmer* (Greystone Books, 2010, \$19.95), Lorraine Johnson from Toronto reminisces about her childhood backyard food garden experiences and how they led to her lifelong need to cultivate at least some of her food herself, despite her urban locale. She deftly mingles her own well-thought-out arguments for doing so with those of other passionate and innovative urban gardeners throughout North America.



The Complete Idiot's Guide to Urban Homesteading (Alpha Books, 2011, \$18.95) by Sundari Elizabeth Kraft takes a broad look at urban food production. A useful reference both for novices and more experienced city farmers alike, this book has tips on container and rooftop gardening, permaculture, foraging, seed saving, managing pests and plant diseases, food preservation and preparation, composting, and raising livestock, bees, and fish.



Urban Agriculture by David Tracey (New Society Publishers, 2011, \$21.95) is both a how-to and a why-to book about growing food in cities. The book gathers ideas from urban farmers throughout the world for working within a city's ecology and culture. Tracey hails from Vancouver, British Columbia, and his book will be especially informative for residents of the Pacific Northwest.

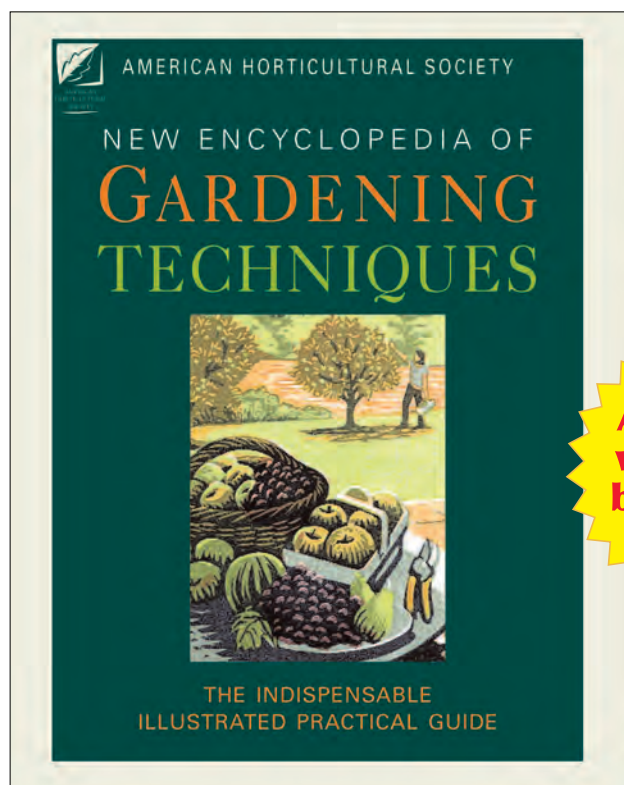


Could an urban community feed itself? *Growing a Garden City* (Sky Horse Publishing, 2010, \$24.95) by Jeremy N. Smith looks at this question through the lens of Garden City Harvest, a community supported agriculture organization in Missoula, Montana. Told from a variety of perspectives—a foodie, a college professor, a homeless shelter chef, among others—the story of this urban agriculture experiment is a testament to just how much growing food together can transform a community.

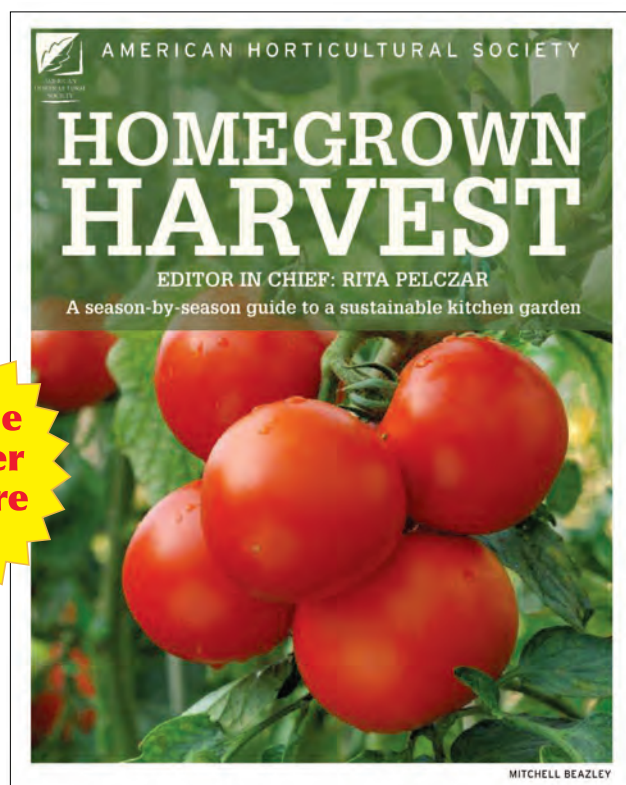
—Helen Thompson, Editorial Intern

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—Ginny Smith, Philadelphia Inquirer



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—Publisher's Weekly



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**View an excerpt from
Homegrown Harvest at
www.ahs.org.**



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REGIONAL HAPPENINGS

Horticultural Events from Around the Country

NORTHEAST

CT, MA, ME, NH, NY, RI, VT

RAP THROUGH OCT. 2. **Succulent Show.** Buffalo and Erie County Botanical Gardens. Buffalo, New York. (716) 827-1584. www.buffalogardens.org.

RAP SEPT. 24 & 25. **Begonia and Gesneriad Show.** Flower show, lectures, vendors. Tower Hill Botanic Garden. Boylston, Massachusetts. (508) 869-6111. www.towerhillbg.org.

RAP SEPT. 30. **Introduction to Mushroom Hunting and Identification.** Guided walk. The Fells. Newbury, New Hampshire. (603) 763-4789. www.thefells.org.

RAP OCT. 2. **Annual Native Plant Lecture and Certificate Awards.** New England Wild Flower Society. The Garden in the Woods. Framingham, Massachusetts. (508) 877-7630. www.newfs.org.

RAP OCT. 8 & 9. **Fall Family Festival Weekend & Dahlia Show.** Planting Fields Arboretum State Historic Park. Oyster Bay, New York. (516) 922-9200. www.plantingfields.org.

RAP OCT. 12. **Fall Flower Arrangement.** Class. Cornell Plantations. Cornell University. Ithaca, New York. (607) 255-2400. www.plantations.cornell.edu.

RAP OCT. 20. **Fall Foliage Guided Garden Walk.** Stonecrop Gardens. Cold Spring, New York. (845) 265-2000. www.stonecrop.org.

RAP OCT. 22–NOV. 13. **Mum Show.** Buffalo and Erie County Botanical Gardens. Buffalo, New York. (716) 827-1584. www.buffalogardens.org.

Looking ahead

NOV. 16. **Herbs for the Holidays: Folklore, Culinary & Health.** Lecture. UVM Horticultural Research Center. Burlington, Vermont. (802) 864-3073. www.friendsofthehortfarm.org.

MID-ATLANTIC

DE, DC, MD, NJ, PA, VA, WV

SEPT. 24. **Seed Saving Workshop.** Monticello, the Thomas Jefferson Foundation. Charlottesville, Virginia. (434) 984-9822. www.monticello.org.

Botanical gardens and arboreta that participate in AHS's Reciprocal Admissions Program are identified with the **RAP** symbol. Current AHS members showing a valid membership card are eligible for free admission to the garden or other benefits. Special events may not be included; contact the host site for details or visit www.ahs.org/rap. The **AHS** symbol identifies events sponsored or co-sponsored by the AHS.

SEPT. 27. **Green Roof Tour.** The Scott Arboretum of Swarthmore College. Swarthmore, Pennsylvania. (610) 328-8025. www.scottarboretum.org.

RAP OCT. 1. **Weird Plant Lore.** Lecture. Lewis Ginter Botanical Garden. Richmond, Virginia. (804) 262-9887. www.lewisginter.org.

AHS OCT. 6–8. **America In Bloom National Symposium and Awards.** Washington, D.C. (614) 487-1117. www.americainbloom.org.

OCT. 8. **Getting Your Garden Ready for Winter and Using Native Plants in Your Landscape.** Workshop. American Community Gardening Association. Teaching Garden, Virginia Cooperative Extension Prince William County. Bristow, Virginia. (703) 792-7747. E-mail: master_gardener@pwcgov.org.

OCT. 9. **The American Sustainable Garden.** Lecture. Longwood Gardens. Kennett Square, Pennsylvania. (610) 388-1000. www.longwoodgardens.org.

AHS OCT. 11–14. **International Master Gardeners Conference.** Charleston Civic Center. Charleston, West Virginia. <http://imgc.ext.wvu.edu>.

OCT. 27. **Planting Tulips Demonstration.** Brookside Gardens. Wheaton, Maryland. (301) 962-1400. www.brooksidegardens.org.

SOUTHEAST

AL, FL, GA, KY, NC, SC, TN

RAP SEPT. 20. **Composting at Home.** Workshop. The Arboretum, State Botanical Garden of Kentucky. Lexington, Kentucky. (859) 257-6955. www.ca.uky.edu/arboretum.

RAP SEPT. 21. **Bonsai.** Workshop. Henry P. Leu Gardens. Orlando, Florida. (407) 246-2620. www.leugardens.org.

RAP SEPT. 24. **Identifying Invasive Plants.** Class. The Boone County Arboretum. Union, Kentucky. (859) 586-6101. www.bcarboretum.org.

SEPT. 29–OCT. 1. **The Landscape Show.** Trade show. Florida Nursery, Growers, and Landscape Association. Orlando, Florida. (407) 295-7994. www.fngla.org.

RAP OCT. 1. **Fall Plant Sale.** Memphis Botanic Garden. Memphis, Tennessee. (901) 576-4100. www.memphisbotanicgarden.org.

RAP OCT. 1. **How to: Enhance Your Patio with Container Roses.** Workshop and guided garden walks. The Gardens at Witherspoon. Durham & Charlotte, North Carolina. (800) 643-0315. www.witherspoonrose.com.

OCT. 15. **Cold Frame: Learn to Build Your Own "Poor Man's Greenhouse!"** Class. Aldridge Botanical Gardens. Hoover, Alabama. (205) 682-8019. www.aldridgegardens.com.

RAP OCT. 15. **Guided Tour.** State Botanical Garden of Georgia. Athens, Georgia. (706) 542-1244. www.uga.edu/botgarden.

RAP OCT. 15 & 16. **Chrysanthemum Show.** North Carolina Chrysanthemum Society. North Carolina Arboretum. Asheville, North Carolina. (828) 665-2492. www.ncarboretum.org.

RAP OCT. 20. **Evolution and Orchid Pollination.** Lecture. Atlanta Botanical Garden. Atlanta, Georgia. (404) 876-5859. www.atlantabotanicalgarden.org.

RAP OCT. 26. **Potting and Mounting Orchids.** Workshop. Marie Selby Botanical Gardens. Sarasota, Florida. (941) 366-5731. www.selby.org.

OCT. 26–29. **PLANET Green Industry Conference.** The Professional Landcare Network. Kentucky Expo Center. Louisville, Kentucky. www.greenindustryconference.org.

OCT. 27. **Secrets of the Garden Revealed.** Lecture. The Arboretum. Fayette County Ex-

Edible Garden Festival in Florida

ON OCTOBER 22 & 23, Fairchild Tropical Botanic Garden in Coral Gables, Florida, will hold its annual Edible Garden Festival. The focus is on backyard gardens,



The festival will include a market of fresh fruits and vegetables grown by local farmers.

growing fruits and vegetables, and gardening for all ages. The event will feature lectures, workshops, cooking and gardening demonstrations, a Q & A panel with local Master Gardeners, and market where local growers can showcase their finest produce.

“From heirloom tomatoes and pumpkins, to herbs, tropical fruits, and nutritious baked goods, our Edible Garden Festival encompasses all things local and fresh,” says Natalie White Bernal, director of community relations and event planning. “Whether guests are learning how to cook with plants from local chefs, hearing firsthand how to create their own home garden, or showing their children what different plant parts look like under a microscope, the Edible Garden Festival

is a fun and educational experience for the whole family.”

Guest lectures will cover a variety of topics from the first thing you need to know about starting up your very own organic vegetable garden and container gardening to canning and preserving the harvest. The festival also aims to raise awareness about nutrition through cooking demonstrations sponsored by Whole Foods Market’s Health Starts Here program.

Through the Reciprocal Admissions Program, AHS members with a valid membership card receive free admission to the festival. For more information, please visit www.fairchildgarden.org.

—Helen Thompson, Editorial Intern

Farmer’s market, cooking demonstrations, children’s activities. Cleveland Botanical Garden, Cleveland, Ohio. (216) 721-1600. www.cbgbgarden.org.

RAP OCT. 1–DEC. 31. **Treasures of the Rainforest.** Conservatory exhibit. Olbrich Botanical Gardens. Madison, Wisconsin. (608) 246-4550. www.olbrich.org.

RAP OCT. 6. **Right Rose, Right Place.** Lecture. Fellows Riverside Gardens. Mill Creek Metro Parks. Canfield, Ohio. (330) 740-7116. www.millcreekmetroparks.org.

OCT. 15. **Wild Ones Natural Landscaping Seminar.** Milwaukee Area Wild Ones Society Chapters. Cardinal Stritch University. Milwaukee, Wisconsin. (414) 299-9888 ext. 3. www.for-wild.org.

RAP OCT. 15 & 16. **Midwest Daffodil Society Bulb Sale.** Chicago Botanic Garden. Glencoe, Illinois. (847) 835-5440. www.chicagobotanic.org.

RAP OCT. 22. **Gardens in Miniature.** Class. Taltree Arboretum & Gardens. Valparaiso, Indiana. (219) 462-0025. www.taltree.org.

Looking ahead

RAP NOV. 8. **Ann Arbor Backyard Bee Keepers.** Lecture and meeting. University of Michigan Matthaei Botanical Gardens & Nichols Arboretum. Ann Arbor, Michigan. (734) 647-7600. www.mbgna.umich.edu.

NOV. 12. **Annual Conference.** Indiana Native Plant and Wildflower Society. University of Indianapolis. Indianapolis, Indiana. (317) 831-1715. www.inpaws.org.

SOUTH CENTRAL

AR, KS, LA, MO, MS, OK, TX

RAP SEPT. 24. **Iris and Daylily Sale.** Fort Worth Botanic Garden. Fort Worth, Texas. (817) 871-7686. www.fwbgbg.org.

RAP SEPT. 29. **Creating Native Prairies and Meadows.** Lecture. Botanical Garden of the Ozarks. Fayetteville, Arkansas. (479) 750-2620. www.bgozarks.org.

OCT. 1 & 2. **Plant Fest!** Hilltop Arboretum. Louisiana State University. Baton Rouge, Louisiana. (225) 767-6916. www.hilltop.lsu.edu.

RAP OCT. 7 & 8. **Annual Plant Sale.** Garvin Woodland Gardens. Hot Springs, Arkansas. (501) 262-9300. www.garvingardens.com.

RAP OCT. 7 & 8. **Systematics Symposium on Trees.** Missouri Botanical Garden. St. Louis, Missouri. www.mobot.org.

OCT. 13–16. **Native Plant Society of Texas**

tension Office. Lexington, Kentucky. (859) 257-6955. www.ca.uky.edu/arboretum.

Looking ahead

NOV. 4 & 5. **2011 Central South Native Plant Conference.** Birmingham Botanical Gardens. Birmingham, Alabama. (205) 414-3965. www.bbgbgarden.org.

RAP NOV. 6. **Tips to Transform Your Garden from Mundane to Magnificent.** Workshop. Sarah P. Duke Gardens. Duke University. Durham, North Carolina. (919) 684-3678. www.gardens.duke.edu.

NORTH CENTRAL

IA, IL, IN, MI, MN, ND, NE, OH, SD, WI

RAP THROUGH OCT. 30. **Chrysanthemums and More!** Garden tours, displays, sale.

Frederik Meijer Gardens and Sculpture Park. Grand Rapids, Michigan. (888) 957-1580. www.meijergardens.org.

RAP THROUGH OCT. 30. **Model Railroad Garden.** Exhibition. Chicago Botanic Garden. Glencoe, Illinois. (847) 835-5440. www.chicagobotanic.org.

RAP THROUGH NOV. 27. **Nature Unframed.** Outdoor art exhibit. Morton Arboretum. Lisle, Illinois. (630) 968-0074. www.mortonarb.org.

THROUGH JAN. 31. **Steel Roots.** Outdoor sculpture exhibit. Minnesota Landscape Arboretum. Chaska, Minnesota. (952) 443-1400. www.arboretum.umn.edu.

RAP SEPT. 23 & 24. **Cleveland’s Ripe Fest.**

Symposium. Omni Houston Hotel. Houston, Texas. (830) 997-9272. www.npsot.org.

OCT. 15 & 16. **Fall Garden Festival.** Exhibits, programs, plant sales. New Orleans City Park. New Orleans, Louisiana. (504) 483-9386. E-mail: garden@nocp.org.

RAP OCT. 15 & 16. **Fall Plant Sale and Gardening Festival.** Lady Bird Johnson Wildflower Center. Austin, Texas. (512) 232-0200. www.wildflower.org.

RAP OCT. 22. **Native Plant Walk.** San Antonio Botanical Garden. San Antonio, Texas. (210) 207-3250. www.sabot.org.

OCT. 29. **Herbs for Healthy Living.** Lecture and garden walk. Oklahoma Centennial Botanical Garden. Tulsa, Oklahoma. (918) 289-0330. www.ocbg.org.

Looking ahead

RAP NOV. 17. **Honoring Who Came Before: American Indian Ethnobotany.** Seminar. St. Louis Science Center. Missouri Botanical Garden. St. Louis, Missouri. (314) 289-4424. www.slsc.org.

SOUTHWEST

AZ, CO, NM, UT

SEPT. 24. **Rocky Mountain African Violet Council Annual Sale.** Plant sale. Rocky Mountain African Violet Council. Tagawa Gardens. Centennial, Colorado. (303) 690-4722. www.tagawagardens.com.

SEPT. 24. **Creeping, Crawling, and Carnivorous Show.** Plant and insect activities. Albuquerque Biopark and Botanical Garden. Albuquerque, New Mexico. (505) 768-2000. www.cabq.gov/biopark/garden.

RAP SEPT. 25. **Seed Collecting Workshop.** Red Butte Garden and Arboretum at the University of Utah. Salt Lake City, Utah. (801) 585-0556. www.redbuttégarden.org.

RAP SEPT. 27. **Growing and Cultivating Small Fruits on the Front Range.** Class. Denver Botanic Gardens. Denver, Colorado. (720) 865-3500. www.denverbotanic.org.

OCT. 8 & 9. **Harvest Festival.** Demonstrations, food, activities. Rio Grande Heritage Farm. Albuquerque Biopark and Botanic Garden. Albuquerque, New Mexico. (505) 768-2000. www.cabq.gov/biopark/garden.

OCT. 15. **The Great Xeriscape.** Garden tour. Tohono Chul Park. Tucson, Arizona. (520) 742-6455. www.tohonochulpark.org.

RAP OCT. 16. **Pumpkin Walk.** Guided walk and workshop. The Arboretum at Flagstaff. Flagstaff, Arizona. (928) 774-1442 ext. 124. www.thearb.org.

Native Roots, Modern Form Exhibit

ART EXHIBITS have become *de rigueur* at botanical gardens, and one particularly worth seeking out this fall is “Native Roots | Modern Form: Plants, Peoples and the Art of Allan Houser,” an



outdoor exhibition of sculptures by Native American artist Allan Houser at the Denver Botanic Gardens in Colorado through November 13.

A modernist whose sculptures feature a blend of realism and abstraction, Houser created sculptures that appear to sweep along with the wind in organic motions, yet remain solid and unmoving as bronze monoliths. His work draws on many influences, including his personal connection with a notorious event in American history—the imprisonment of the Chiricahua Apache tribe by the U.S. government for 27 years. Houser was the first child born following the tribe’s release from internment at Fort Sill, Oklahoma, in 1914. He grew up on his family’s farm in Oklahoma, then studied painting at the Santa Fe Indian School in New Mexico, which encouraged students to develop their own artistic style. During his career he created

Many of Allan Houser’s sculptures, like this one called “Sacred Rain Arrow” at the Denver Botanic Gardens, were inspired by his Native American heritage.

many works of art on commission and also worked as a teacher. In 1992, Houser became the first Native American to be awarded the National Medal of Arts. He died two years later. Today, Houser is considered an important 20th-century artist whose work helped bring Native American art into the mainstream art scene and served as an inspiration for other Indian artists.

For more information about the Houser exhibit, visit www.denverbotanic.org.

—Terra-Nova Sadowski, Editorial Intern

WEST COAST

CA, HI, NV

RAP SEPT. 24. **Drip Irrigation.** Class. The Gardens at the Springs Preserve. Las Vegas, Nevada. (702) 862-3760. www.springspreserve.org.

RAP SEPT. 27. **Successful Gardens.** Class. South Coast Botanic Garden. Palos Verdes Peninsula, California. (310) 544-1948. www.southcoastbotanicgarden.org.

OCT. 1. **Community Daffodil Bulb Planting.** Activity. May Arboretum & Botanical Gar-

RAP OCT. 22. **Understanding Front Range Soils.** Class. Denver Botanic Gardens. Denver, Colorado. (720) 865-3500. www.denverbotanic.org.

Looking ahead

RAP NOV. 5 & 6. **Orchid Show.** Red Butte Garden and Arboretum at the University of Utah. Salt Lake City, Utah. (801) 585-0556. www.redbuttégarden.org.

RAP NOV. 11. **Garden Discovery Tour.** Desert Botanical Garden. Phoenix, Arizona. (480) 481-8147. www.dbg.org.

den. Reno, Nevada. (775) 785-5961.
www.washoecounty.us/parks/arboretum.

OCT. 2. **Wise Water Management.** Workshop. Occidental Arts and Ecology Center. Occidental, California. (707) 874-1557.
www.oaec.org.

OCT. 5. **Walk the High Line with Patrick Cullina.** Talk on urban beautification. Garden Conservancy & Flora Grubb Gardens. San Francisco, California. (415) 626-7256.
www.gardenconservancy.org.

RAP OCT. 8. **Fall Plant Sale.** Arboretum at University of California Santa Cruz & California Native Plant Society, Santa Cruz County Chapter. Santa Cruz, California. (831) 427-2998. <http://arboretum.ucsc.edu>.

RAP OCT. 9 & 10. **California Native and Fall Plant Sale.** Fullerton Arboretum. Fullerton, California. (657) 278-3407.
www.fullertonarboretum.org.

OCT. 10-16. **National Convention and Rose Show.** American Rose Society. Universal Hilton Hotel. Universal City, Los Angeles, California. (318) 938-5402. www.ars.org.

OCT. 16. **Discovering the Garden in Early Childhood Education.** Educator workshop. Life Lab Science Program. Santa Cruz, California. (831) 459-2001. www.lifelab.org.

OCT. 22 & 23. **Maximum Yield Long Beach Indoor Gardening Expo.** Long Beach Convention Center. Long Beach, California. (250) 729-2677. www.indoorgardenexpo.com.

RAP OCT. 27. **Bugs and Critters of the Garden.** Guided walk. South Coast Botanic Garden. Palos Verdes Peninsula, California. (310) 544-1948. www.southcoastbotanicgarden.org.

OCT. 29. **Sustainability From the Ground Up.** Seminar. Alameda County Master Gardeners. The Garden Center at Lake Merritt. Oakland, California. (510) 639-1275.
<http://acmg.ucdavis.edu>.

OCT. 30-NOV. 2. **American Society of Landscape Architects Annual Meeting & Expo.** San Diego, California.
www.asla.org/2011meeting.

Looking ahead

RAP NOV. 5 & 6. **Annual Fall Plant Sale.** Rancho Santa Ana Botanic Garden. Claremont, California. (909) 625-8767.
www.rsabg.org.

RAP NOV. 12 & 13. **Dried Flower and Succulent Wreath Sale.** Arboretum at the University of California, Santa Cruz. Santa Cruz, California. (831) 427-2998.
<http://arboretum.ucsc.edu>.

NORTHWEST

AK, ID, MT, OR, WA, WY

SEPT. 25. **Fall Abundance Plant Sale.** The Arboretum Foundation. Washington Park Arboretum. Seattle, Washington. (206) 325-4510. www.arboretumfoundation.org.

OCT. 12. **Stunning Stewartia.** Lecture. Northwest Horticultural Society. Center for Urban Horticulture. Seattle, Washington. (206) 780-8172. www.northwesthort.org.

RAP OCT. 13. **Winterizing Roses.** Talk. Wyoming Prairie Rose Society. Cheyenne Botanic Gardens. Cheyenne, Wyoming. (307) 631-0236. <http://wyoprairierose.tripod.com>.

OCT. 29. **Pine Pruning & Needling.** Demonstration. Portland Japanese Garden. Portland, Oregon. (503) 542-0280.
www.japanesegarden.com.

RAP OCT. 30. **Mushroom Festival.** Mount Pisgah Arboretum. Eugene, Oregon. (541) 747-3817. www.mountpisgaharboretum.org.

Looking ahead

RAP NOV. 5. **Rethinking Idaho Landscapes Symposium.** Idaho Botanical Garden and University of Idaho. Boise Centre-on-the-Grove. Boise, Idaho. (208) 343-8649.
www.idahobotanicalgarden.org.

NOV. 9. **Container Confidential.** Lecture. Northwest Horticultural Society. Center for Urban Horticulture. Seattle, Washington. (206) 780-8172. www.northwesthort.org.

CANADA

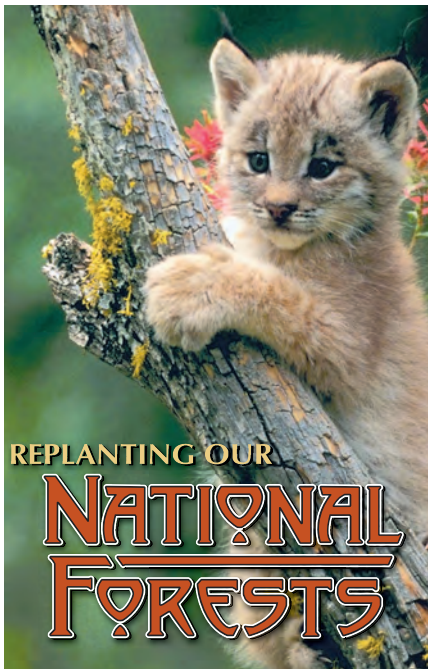
SEPT. 28 & 29. **The CanWest Hort Show.** Trade show. BC Landscape and Nursery Association & United Flower Growers. Vancouver Convention Center. Vancouver, British Columbia. (604) 574-7772.
www.canwesthortshow.com.

OCT. 13. **The Secret World of Slugs and Snails: Life in the Slow Lane.** Lecture. VanDusen Botanical Garden. Vancouver, British Columbia. (604) 257-8659.
www.vandusengarden.org.

OCT. 19 & 20. **Landscape Ontario's Expo.** Trade show. Landscape Ontario. Toronto, Ontario. (800) 265-5656. www.loexpo.ca.

OCT. 26. **Communities in Bloom: National Awards Ceremony and Symposium on Parks and Grounds.** National Battlefields Commission. Quebec City, Quebec. (514) 694-8871. www.communitiesinbloom.ca.

RAP OCT. 29 & 30. **Annual Show.** American Orchid Society. Royal Botanical Gardens. Hamilton, Ontario. (905) 527-1158.
www.rbg.ca.



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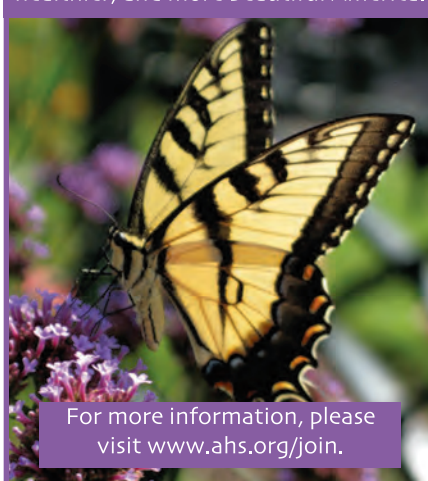
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PRONUNCIATIONS AND PLANTING ZONES

Most of the cultivated plants described in this issue are listed here with their pronunciations, USDA Plant Hardiness Zones, and AHS Plant Heat Zones. These zones suggest a range of locations where temperatures are appropriate—both in winter and summer—for growing each plant.

While the zones are a good place to start in determining plant adaptability in your region, factors such as exposure, moisture, snow cover, and humidity also play an important role in plant survival. The zones tend to be conservative; plants may grow outside the ranges indicated. A USDA zone rating of 0–0 means that the plant is a true annual and completes its life cycle in a year or less.

A–C

Acacia podalyriifolia uh-KAY-shuh pod-uh-leer-ih-FO-lee-uh (USDA Zones 9–11, AHS Zones 12–9)
Acer japonicum AY-ser jah-PON-ih-kum (5–7, 7–1)
A. leucoderme A. loo-ko-DUR-mee (4–8, 8–3)
A. palmatum A. pal-MAY-tum (6–8, 8–2)
Acis autumnalis AY-sis aw-tum-NAL-iss (5–9, 9–1)
Allium senescens ssp. montanum AL-ee-um sen-ESS-ens ssp. mon-TAN-um (4–10, 10–1)
A. thunbergii A. thun-BER-jee-eye (5–9, 9–5)
Amelanchier × grandiflora am-eh-LANG-kee-ur gran-dih-FLOR-uh (3–7, 7–1)
A. laevis A. LEE-vis (5–9, 9–3)
Arbutus unedo AR-byew-tus YEW-nee-doh (8–9, 9–6)
Aucuba japonica aw-KYEW-buh jah-PON-ih-kuh (7–10, 12–6)
Bauhinia lunarioides baw-HIN-ee-uh loo-nar-ee-OY-deez (9–11, 12–8)
Betula nigra BET-yew-luh NY-gruh (4–9, 9–1)
Brassica oleracea var. gongylodes BRASS-ih-kuh o-luh-RAY-see-uh var. gon-gee-LO-deez (3–10, 10–1)
Carpinus caroliniana kar-PY-nus kar-o-lin-ee-AY-nuh (3–9, 9–1)
C. japonica C. jah-PON-ih-kuh (4–8, 8–4)
Cassia leptophylla KASS-ee-uh lep-toh-FIL-uh (9–11, 12–9)
Cedrus deodara SEED-rus dee-o-DAH-ruh (7–9, 9–6)
Cercis canadensis SUR-siss kan-uh-DEN-siss (4–9, 9–2)
Chionanthus retusus ky-o-NAN-thus reh-TOO-suss (5–9, 9–3)
C. virginicus C. vir-JIN-ih-kus (4–9, 9–1)
Colchicum autumnale KOAL-chih-kum aw-tum-NAL-ee (5–9, 9–1)
C. baytopiorum C. bay-toh-pee-OR-um (4–9, 9–1)
C. byzantinum C. bih-zan-TY-num (5–9, 9–1)
C. cilicicum C. sih-LISS-ih-kum (4–9, 9–1)
C. kotschyi C. KOT-skee-eye (4–9, 9–1)
C. lingulatum C. ling-yew-LAY-tum (4–9, 9–1)
C. speciosum C. spee-see-O-sum (4–9, 9–1)
Crataegus marshallii krah-TEE-gus mar-SHAL-lee-eye (6–8, 8–6)
C. spathulata C. spath-yoo-LAY-tah (6–8, 8–6)

C. viridis C. VEER-ih-diss (5–7, 7–5)
Cornus florida KOR-nus FLOR-ih-duh (5–8, 8–4)
C. kousa C. KOO-suh (5–8, 8–5)
Crocus cartwrightianus forma albus CRO-kus cart-rye-tee-AY-nus forma AL-bus (6–8, 8–6)
C. goulimyi C. goo-LEEM-ee-eye (3–8, 8–1)
C. kotschyanus C. kot-schee-AY-nus (3–8, 8–1)
C. laevigatus C. lee-vih-GAY-tus (5–8, 8–3)
C. longiflorus C. lon-jih-FLOR-us (5–8, 8–5)
C. medius C. MEE-dee-us (3–8, 8–1)
C. niveus C. NIV-ee-us (5–8, 8–1)
C. nudiflorus C. noo-dih-FLOR-us (3–8, 8–1)
C. pulchellus C. pul-KEL-us (3–8, 8–1)
C. sativus C. sah-TY-vus (5–8, 8–1)
C. speciosus C. spee-see-O-sus (3–8, 8–1)
C. tomasii C. toh-MAH-see-eye (3–8, 8–1)
C. tournefortii C. tor-nih-FORT-ee-eye (3–8, 8–1)
C. veneris C. ven-AIR-iss (3–8, 8–1)
Cyclamen cilicium SY-kluh-men sih-LISS-ee-um (5–9, 9–3)
C. confusum C. kon-FEW-sum (5–7, 9–7)
C. graecum C. GREE-kum (5–9, 9–5)
C. hederifolium C. hed-er-ih-FO-lee-um (5–7, 9–7)
C. intaminatum C. in-tam-ih-NAY-tum (5–8, 8–5)
C. mirabile C. mir-AH-bil-ee (8–9, 9–8)

D–O

Dryopteris filix-mas dry-OP-ter-iss FIL-iks-MASS (4–8, 8–1)
Epimedium × perralchicum ep-ih-MEE-dee-um pair-al-CHEE-kum (5–8, 8–5)
E. × perralderianum E. pair-al-dair-ee-AN-um (5–8, 8–5)
Euonymus fortunei yew-ON-ih-mus for-TOON-ee-eye (5–9, 9–2)
Galanthus elwesii var. monostictus guh-LAN-thus el-WEEZ-ee-eye var. mono-STIK-tus (3–9, 9–1)
G. peshmenii G. pesh-MEN-ee-eye (3–9, 9–1)
G. reginae-olgae G. REJ-in-ee-OL-gee (3–9, 9–1)
Heptacodium miconioides hep-tuh-KO-dee-um my-kon-ee-OY-deez (5–9, 9–4)
Hosta venusta HAHS-tuh veh-NEW-stuh (3–9, 9–2)
Hydrangea anomala ssp. petiolaris hy-DRAN-juh ah-NOM-ah-luh ssp. pet-ee-o-LAIR-iss (4–9, 9–1)
Iris foetidissima EYE-ris fee-tid-ISS-ih-muh (4–9, 9–2)

Juniperus communis joo-NIP-er-iss com-YEW-niss (2–6, 6–1)
Lamium maculatum LAM-ee-um mak-yew-LAY-tum (4–8, 8–1)
Lunaria annua lew-NAR-ee-uh AN-yew-uh (3–9, 9–1)
Maackia amurensis MAK-ee-uh am-ur-EN-siss (5–7, 7–5)
Magnolia × loebneri mag-NOLE-yuh LOBE-ner-eye (5–9, 9–5)
Malus sargentii MAL-us sar-JEN-tee-eye (4–8, 8–1)
Metasequoia glyptostroboides met-uh-suh-KWOY-uh glip-toh-stro-BOY-deez (5–10, 10–1)
Ophiopogon planiscapus o-fee-o-PO-gon plan-iss-KAY-pus (6–11, 12–5)
Ostrya virginiana OSS-tree-uh vir-jin-ee-AN-uh (4–8, 8–1)
Oxydendrum arboreum awk-sih-DEN-drum ar-BOR-ee-um (5–9, 9–3)

P–Z

Prosopis chilensis pro-SO-piss chil-EN-siss (8–11, 12–9)
P. velutina P. vel-oo-TEEN-uh (7–9, 10–7)
Prunus campanulata PREW-nus kam-pan-yew-LAY-tuh (7–8, 8–7)
P. mume P. MOO-may (6–8, 8–6)
P. × subhirtella P. sub-her-TEL-uh (6–8, 8–6)
Pyrus calleryana PY-rus kal-lur-ee-AN-uh (5–9, 9–5)
Rhodophiala advena ro-doh-FEE-ah-luh ad-VEEN-uh (9–11, 12–9)
R. bifida R. BIF-ih-duh (9–11, 12–9)
Ruscus aculeatus RUS-kus ak-yew-lee-AY-tus (7–9, 9–7)
Scilla autumnalis SIL-luh aw-tum-NAL-iss (4–8, 8–1)
S. scilloides S. sil-OY-deez (4–8, 8–1)
Sedum erythrostictum SEE-dum er-ith-roh-STIK-tum (4–9, 9–2)
Sophora secundiflora so-FOR-uh seh-kun-dih-FLOR-uh (7–11, 12–7)
Sternbergia lutea sturn-BUR-jee-uh LEW-tee-uh (7–9, 9–6)
S. sicula S. SIK-yew-luh (7–9, 9–6)
Ulmus alata UL-mus ah-LAY-tuh (6–9, 9–6)
Verbena canadensis ver-BEE-nuh kan-uh-DEN-siss (4–7, 7–1)

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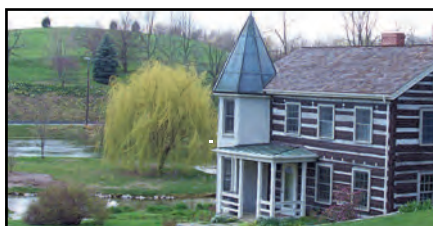


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Blossoms of Aster 'Pink Star' Herald Autumn

by Nancy McDonald

EACH SUMMER in my Michigan garden, *Aster* 'Pink Star' (USDA Hardiness Zones 4–8, AHS Heat Zones 8–1) forms a pleasing, airy mass of slender green leaves on strong stems reaching three feet tall and nearly that across. A peony on one side and daylilies on the other provide interesting foliage contrasts. As the aster's cheerful, starry blooms begin to open in early fall, the peony foliage turns mahogany-red and the daylilies are once again a quiet green.

Although there is considerable confusion about this cultivar's parentage (see box, below), one certainty is that 'Pink Star' is an outstanding garden plant for the upper Midwest. In the eight years I've grown it here, I've found that nothing eats it, frigid temperatures do not faze it, and neither mildew nor rust disfigures it. While the plant has grown steadily larger in diameter, it remains well-behaved, with no invasive tendencies whatsoever. In the extreme climate of my region, the plant typically reaches no more than three feet tall, but the Mt. Cuba Center in Delaware's Zone 7a/6b reports heights up to five feet.

DISPUTED PARENTAGE

The origins for 'Pink Star' are uncertain. Some references list it as a selection of heath aster (*A. ericoides*, syn. *Symphotrichum ericoides*), others as a hybrid. In the *American Horticultural Society Encyclopedia of Perennials*, Editor in Chief Graham Rice describes it as synonymous with the cultivar 'Ochtendgloren', selected by Dutch garden designer Piet Oudolf. —N.M.

Sources

Ambergate Gardens, Chaska, MN.
(877) 211-9769.
www.ambergategardens.com.
Digging Dog Nursery, Albion, CA.
(707) 937-1130.
www.diggingdog.com.



'Pink Star' aster provides an abundance of welcome color in the late-season garden.

The many small flowers, made up of soft lavender-pink ray florets and yellow disk florets, form a cloud of color in the autumn garden, attracting bees and butterflies. In a vase, the long-lasting stems combine nicely with dark berries, evergreen foliage, and other asters.

In my garden, flowering begins in mid-to late September and continues through October and beyond, weather permitting. For eastern gardeners, Mt. Cuba Center reports a bloom period from mid-September to mid-October. John Whittlesey of Canyon Creek Nursery in Oroville, California, says it flowers most of September. Unfortunately, 'Pink Star' is not particularly heat tolerant, so it is not suited for warmer regions, including the Southeast.

'Pink Star' thrives in full sun and well-drained soil. Once it's established, I've

found it quite drought tolerant. It is adaptable to pH and is not a heavy feeder, being content with a topdressing of compost or rotted manure once a year. Although it retains its lower leaves better than most asters in dry weather, it's a good idea to site it behind a bushy plant such as a peony to hide any unsightly bare stems. Good companions include purple-leaved shrubs, broad-leaved perennials with foliage that persists in the fall, peonies with purplish autumn foliage, and low-growing conifers.

In spring, divide 'Pink Star' to ensure this pretty plant will continue to grace your garden with soft color once the days grow short again.

A former co-editor of American Cottage Gardener magazine, Nancy McDonald lives in Grand Marais, Michigan.



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