

# The Power of Seed



by Charlotte Kidd

SEED IS LIFE, LITERALLY AND FIGURATIVELY. An embryo surrounded by endosperm as food and seed coat as protection. A dormant, miniature plant ready to burst into action at the drop of water and heat of the sun.

A seed exchange, such as the one at the Hardy Plant Society/Mid-Atlantic Group, brings life also. To friendship. To community. To learning and sharing. To beauty. To the odd, unique, and wonderful.

“Seeds are like little packages of energy,” says Julie McIntosh, Curatorial Assistant II, Harvard University Herbaria. As the digital carpologist-photographer for Garden PHI, she lives, studies, and breathes seeds. “Endosperm is the engine of the seed. Some seeds float for years in our salty oceans. Some can waft through the air hundreds of miles away from their parents, like a kid going off to college. Or they can plop right down, pull out their trusty drill, and bore a hole in the ground without any trouble.”

The oldest fruiting part of the seed found so far is in southern Sweden dating back 9,000 years, McIntosh notes. “One of the smallest seeds, at least in New England, is our own pink-shell azalea (*Rhododendron vaseyi*). Ten of those can sit on the head of a pin.”

McIntosh likens seed banks, seed exchanges, and seed germplasm labs to nurseries. “They are one of the most widespread, invaluable approaches to conservation. They keep the plants and the biodiversity alive. They preserve plants’ genetic resources in a minimum of space.”

For example, the Svalbard Global Seed Vault in Norway, near the North Pole, is a natural freezer holding more

than 850,000 seeds for about 4,000 plant species, mostly crop plants. The Millennium Seed Bank Partnership at the Royal Botanic Gardens, Kew has “been helping to sort and store seed, mainly wild species, since the late ’90s. Mostly they cryopreserve seed, embryos in isolation in fully established seed banks and germplasm labs at -18°C,” McIntosh notes.



Seed containers for storage\*

The Hardy Plant Society does its part in seed conservation, though HPS ‘Seed Heads’ use more storage than conventional techniques—saving seed in paper envelopes, paper bags, and glass jars.

Since the fall and winter of 1993–1994, HPS members have been gathering, cleaning, packing, and distributing seed with an eye to sharing their favorites and keeping unusual plants in circulation. They often value and preserve seeds of plants not available in commercial

nurseries. Their early paper and pencil system has evolved into an impressively comprehensive catalog and state-of-the-art, digital data collection and communication.

“Our annual Seed Exchange is a large project involving many donors from much of the East Coast, into Ohio and Tennessee,” says Sandy Vernick, this year’s chair of the Seed Exchange. In addition to individual members, botanical gardens and other showcase gardens also are donors and recipients.

HPS is one of the largest seed exchanges in this region, says past Seed Exchange Chair Loretta DeMarco. “We offer more than 1,100 different seeds, varieties that are difficult to get anywhere else.” Devoted members range nationwide—New England, the Mid-Atlantic, Mid-West, and Oregon. Many join to enjoy the Seed Exchange benefits. Members can donate and order seed collected and packaged by HPS volunteers.



Seed donations from Karen Barrett

The 22<sup>nd</sup> annual edition (2015–2016) of the Seed Exchange Catalog includes 1,110 seed donations generously contributed by 68 gardeners, from beginners to

professionals, says Vernick. “A couple donors offer 150 to 200 types of seeds every year. Some are people who have incredible gardens—Paula Squitterre, Charles Cresson.”

There’s more, DeMarco adds. “The Seed Exchange is important as a connection. The act of saving seeds creates a community. Somebody gave us this name in the past and we still use it.

\* Boxes (watchmaker’s cases) shown can be purchased from Lee Valley, [www.leevalley.com](http://www.leevalley.com), in the woodworking container section.



photo from Loreta DeMarco

### Setting up for the Seed Exchange

We are ‘Seed Heads’. We’re a bunch of ‘Seed Heads’ who just love seed, saving seed, having seed, sharing seed.”

The project is long, large, and loved. The collaborative process starts in July, peaks in October, and ends about mid-February when seeds are mailed, explains Vernick. “It’s really a joint effort. I just want to be sure that everybody involved gets a lot of applause, because everybody works really, really hard for a long time to do this.”

“We love new volunteers,” adds DeMarco. Anyone interested in plants and seeds is welcome. No experience is necessary. Members will learn from others at the Seed Exchange cleaning and packaging workshops. “We talk about seeds all the time. We talk about starting them. We answer questions. We share information, expertise, and experiences.” Learning on your own is fine too, with the Internet as a resource.

“Seed starting is very popular right now,” DeMarco says. “Young adults are interested in beauty and in eating healthily. They’re growing food and flowers they like for their tables and for pollinators.” They’re also using Seed Exchange seed to grow bouquets to sell at farmers’ markets.

For Charles Cresson, a major donor of seed from his Hedgley Spring gardens in Swarthmore, the HPS Seed Exchange is conservation to ensure plants’ survival in a less grandiose way than seed banks preserving species. The Exchange is about sharing, not storing. “To me the Seed Exchange is enabling people to get ahold of things that can enrich your gardens that might not be so easy to get. There’s a responsibility, if you have really special things—living things—to share them. If you don’t, they might just go out of existence.” A lesson

learned from Mrs. (Gertrude) Wister, he added. “She was amazingly influential. She was very sharing. So I took that point very much to heart.”

Nancy Ondra values the importance of genetic variation and delights in the surprises of keeping seed germplasm in circulation. Growing a variety of plants from seed, rather than growing clones of the most popular 30 or 40 perennials and annuals, has ecological benefits—for example, the potential for regional adaptability. “From a fun standpoint, there’s variability when you’re growing something from seed. You can find new

things, new colors, different heights. That’s how new plants get discovered.” For example, her ‘Green Mix’ cross from *Nicotiana langsdorffii* ‘Lime Green’ and *Nicotiana langsdorffii* that’s come back round to her as *Nicotiana* Nancy Ondra’s ‘Green Mix’.

### Seed Gathering Tips

It’s like eating potato chips. Those who love gathering seed can’t stop at one. “Once you start looking at plants with an eye to seed, it’s kind of addicting,” says Nancy Ondra, member of the HPS/MAG Board of Directors when the seed exchange began 22 years ago.

### Seed Form and Structure

“No two seeds are alike. The characteristics and morphology of seed depend on where they grow and what they have to buffer in order to germinate, then flower and fruit again,” explains Julie McIntosh, Curatorial Assistant II, Harvard University Herbaria and digital carpologist-photographer, Garden PHI.

Ah, Nature’s marriage of form and function. McIntosh describes two seeds with unusual, effective protection. A seed from the strongbark (or strongback) tree, *Bourreria succulenta*, in Florida “has fins all the way around so when it lands on the soil that’s 110° or 126°, it won’t burn up and sizzle the way a NASA spaceship would when it comes into the atmosphere. Fins protect the seed by keeping it off the ground and dissipating heat.”

When photographing seeds of the devil’s maple, *Acer diabolicum*, McIntosh wears gloves. Those seeds have irritating bristles, like cactus glochids, in the pericarp around the ovary—the type of morphology that

will protect them from themselves and predators.

Closer to home, HPS seed lovers are familiar with native thermopsis and lupine. Thermopsis looks like a loose-flowering, yellow baptisia. Lupine flowers of many colors cluster tightly on racemes. Both are in the bean family, one of the largest seed families, and come from pods, McIntosh notes.

Yet each is different. Look closely. The unique beauty of seeds is undeniable.

Each thermopsis seed is 4mm tall, 3mm wide in colors ranging from caramel to dark chocolate. “A variety of shades could be in the same batch,” she adds. “A lot of seeds do that. Sometimes it’s where they form in the fruit itself.

Lupine seed has the look and size of thermopsis as well as baptisia seed, however it’s more swollen. Dark charcoal brown with black speckles, it lacks the indentation at the hilum that most legumes have.



Thermopsis seed



Lupine seed

photo ©2015GardenPHI Julie McIntosh Shapiro

photo ©2015GardenPHI Julie McIntosh Shapiro

“Each time you go out, especially in the fall, you can spend hours collecting with a whole bunch of paper bags. It’s like, Oh, there’s some! And, Oh, there’s some! It’s hard to stop. When you’re in the collecting and cleaning mindset, it’s just as efficient to work on ten kinds of seed as it is one or two.”

Ondra collects in brown paper lunch bags. “They pack easily. If you want to put them away, they squeeze easily into a box.”

*Nancy Ondra’s #1 Tip.* “I absolutely label the bags with seed type and date of collection as I collect the seeds.” Noting location isn’t necessary. All her seeds come from her Hayefield gardens in Bucks County, PA. (See *Nancy Ondra’s blog at Hayefield.com*, A Pennsylvania Plant Geek’s Garden.)

*Charles Cresson’s #1 Tip.* Almost everyone wants seed from **Charles Cresson’s** Hedgleigh Spring gardens in Swarthmore—especially camellia seed. He’s happy to oblige. “I have things here that I know people would like and I want to share them,” he says. Collecting and cleaning seed is one ritual in his long gardening day.

“I have containers out in the garden. Different-sized cups, cans, buckets,” Cresson explains. “When I’m out in the garden and I see something and the seed’s ready, I will just cut it and put it in the container. At the end of the day, it comes into the house.” He keeps a stack of paper cut into 1½" pieces handy, so he’ll immediately record the plant’s name to drop in the container for seed cleaning later. A few dry seeds, he’ll slide into a paper envelope.

## Seed Cleaning Tips

No one mentioned any shortcuts to cleaning seed. “The cleaning thing is tricky and fascinating,” says Ondra. “It’s IMPORTANT to learn to identify



Checking individual donor files against catalog

photo from Loretta DeMarco

the seed and separate the seed from the chaff.” And to know signs of a viable seed versus an absolutely useless seed. She’s still learning.

Everyone pointed to the HPS

Seed Exchange workshops as the most fun way to learn nearly everything about seed cleaning, gathering, germinating, and more from very experienced gardeners.

Imagine ‘Seed Heads’ of all ages and expertise sitting around a table cleaning and packaging seed, comparing this year’s batch to last, discussing who’s growing what and how, and...well, what they love most—their experiences with seeds and plants!

“It’s one of the best benefits of joining the group. Everybody’s welcome,” says **Kay Johns**. She recalls her first workshop at the Henry Foundation, where the Seed Exchange workshops are held. “I know it was more than twenty years ago because I remember announcing that my daughter was pregnant. I was a novice at growing seeds.” By day’s end, she was able to identify the chaff from the seed and knew how to gather seeds properly. Other newbies will, too.

**Loretta DeMarco** champions the workshops for their sense of connection. “The people who come and volunteer to work at the workshops have formed quite a bond. It’s a fun day. New people come every year. We enjoy being together. We enjoy working with seed, talking about it. The conversation never stops.”

Seed Exchange workshops begin on January 19, continuing into early February, at the Henry Foundation, Gladwyne, PA. Workshops are held 10:00 A.M.–2:30 P.M. on Tuesdays, Wednesdays, and Thursdays.

## Seed Germinating Tips

*Kay Johns’s #1 Tip.* Look to Tom Clothier’s Garden Walk and Talk at [tomclothier.hort.net](http://tomclothier.hort.net) for more detailed



Cleaning clematis seed

photo from Loretta DeMarco

knowledge. “His website gives the germination of every seed known to man.” Out of the garden on the digital side, keeping track of 1,000 annual seed donations and educating recipients has shifted from painstaking to increasingly easy for all. The HPS Seed Catalog listing all donations and donors is available online (and in hard copy by request). Every seed order includes a seed bibliography with germinating information plus a website resource list.

*Peggy Bowditch’s #1 Tip.* Donor and recipient **Peggy Bowditch** marks each envelope with the seed germination temperature, so she knows whether to place flats in a warm or cool place.



Cleaning seed of *Prunus persica*—it’s not always easy

photo from Loretta DeMarco



Forms have the number of packets ordered for each seed

photo from Sharee Solow



Dividing donations into seed packets

photo from Sharee Solow

HPS’s organization is above and beyond the norm, says Bowditch. She gets seed from four different seed exchanges. HPS/MAG’s attention to details surpasses them all. “I think their information, both for the seed donors



Workshop volunteers filling packets for seed orders  
photo from Loretta DeMarco

and those who receive seed, is super. They are so businesslike. They send you [as a donor] a list of everything you've contributed in the past. They make it so easy." The Seed Catalog has the standard listing of genus, species, cultivar, PLUS "a wealth of information on what it is, how it looks when it grows up, and any special sowing instructions. Nobody else that I deal with does that!"

DeMarco credits Jim Bobb and IT volunteers for streamlining such complex digital data processing. "Over the years, almost all the workings of the Seed Exchange have moved to an

electronic medium. Bobb's algorithms [software, online forms, and databases] and the efforts of others before him have made our work so much easier, so much faster."



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Ed Note: A full-color version of this article can be found on the HPS/MAG website, [www.hardyplant.org](http://www.hardyplant.org).

For more information on germinating seeds, check the propagation information in the HPS Seed Exchange catalog online at [www.hardyplant.org](http://www.hardyplant.org) and [RobsPlants.com](http://RobsPlants.com), the blog of HPS member Rob Broekhuis.

