

GET READY! ANOTHER SEASON, ANOTHER SEEDEX

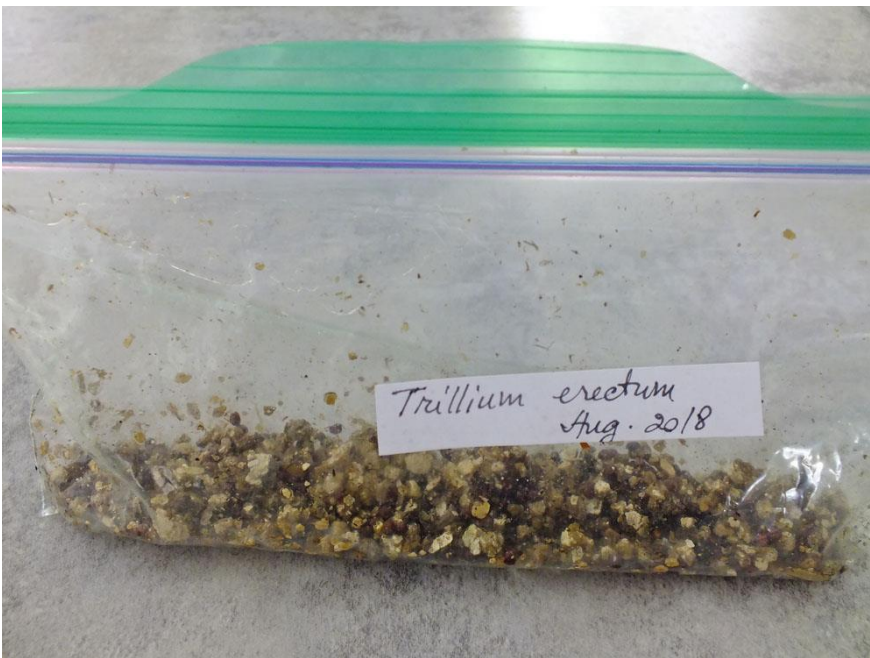
Reviewing the donations to the recent Seedex brought to mind the problem of non-viable seed. It's disappointing when the seeds you ordered don't germinate. What might have gone wrong?

HYDROPHILIC SEEDS WILL NOT SURVIVE DESSICATION

Some seeds have a high moisture content. If they lose much of this moisture, the embryo inside will die. Even when stored at optimal temperatures, they quickly lose viability. This group is classified as "recalcitrant" (Eric H. Roberts, 1973); Bill Cullina of the New England Wildflower Society introduced the term "hydrophilic" to describe them. Gabriela Costea, an ORG&HPS member who owns BotanyCa, uses the latter term. "Recalcitrant" suggests "obstinate". In fact, hydrophilic seeds are anything but obstinate. Their embryos are raring to go.

In the past, ORG&HPS referred to these seeds as "ephemeral", but that term causes confusion. "Ephemeral" is rightly applied to those spring-flowering woodland plants which die back shortly after blooming and disappear until the following year. Some of them produce hydrophilic seeds; others do not.

Success in propagating hydrophilic seeds is straightforward. Collect them as soon as they are ripe, then immediately clean and sow them. If you must store them, put them in Ziploc bags in slightly moist vermiculite or peat moss. The medium must be just moist, not wet and one needs to use a fairly roomy bag. In small bags the seeds have the tendency to rot fast perhaps because they lack oxygen. There is no need to spray the seeds with any chemical. The bags should be kept at the same temperature that the seeds would experience out of doors. Keep them warm during summer, coolish towards the fall and then 4°C at the onset of winter. Do not store them in the freezer because the formation of ice crystals will damage cell membranes.



Seed moist-packed in vermiculite photo: Gabriela Costea

DO NOT DONATE ANY HYDROPHILIC SEEDS TO THE SEEDEX!

We are unable to ensure the proper conditions for storage and frigid January temperatures during shipment will kill any remaining embryos.

EXCHANGING HYDROPHILIC SEEDS INFORMALLY

If you are willing to collect and share hydrophilic seed, you will need to plan ahead. Send a list of the species to the Journal editors for publication in the April or May Journal. E-mail journaleditors@onrockgarden.com. Your offerings could also be posted on Facebook or Instagram.

Those who want to obtain these seeds should send self-addressed, stamped envelopes, one for each species, to the donor who will ship them as soon as they are ripe. The first of the seeds might be ready early in May, but some species don't mature until late summer. You can also order many of these species from [BotanyCa](#) where they have been collected, stored and evaluated with meticulous care.

SOME SEEDS HAVE A SHORT LIFESPAN

Many genera include species bearing seeds of a fairly limited viability. However, not all species in a given genus will necessarily demonstrate this characteristic. If planted after 6 months, they might germinate but are less likely to produce vigorous plants. Within this category, germination is affected by a wide range of factors like genetics, temperature and moisture conditions under which the seed ripened, the maturity of the seed at harvesting and the altitude at which the mother plant grew. Alpines, with their brief growing season and cool conditions for seed maturation, bear seed that is of shorter viability than the identical species grown at lower elevations.

In addition, some species of Aconitum, Adonis, Delphinium, Epimedium, Erythronium and Trillium are partially hydrophilic, and will tolerate a degree of drying. If you are planning to save them, you might want to provide temporary storage in barely moist vermiculite. Gabriela Costea comments that species with green seed coats at the time of collecting (for example, Anemone, Erythronium, Hepatica, Jeffersonia) need to be left for 1 day or so to dry a bit; if placed in moist medium right away, it's a sure disaster.

To be on the safe side, if you see “!” on the germination code once your seed order arrives, it's best to act quickly. The seeds should be sown immediately upon receipt.

ALL SEED DETERIORATES OVER TIME, ESPECIALLY IF IMPROPERLY STORED

After collection, seeds must be dried well and placed in a paper container. Mould can destroy seeds stored in plastic. Glassine envelopes work well for storage. We have found that donation of just one glassine envelope full of seeds provides a sufficient quantity to fill all our orders unless the seeds are large. Glassines can be obtained from ORG&HPS by e-mailing seedex@onrockgarden.com. Once seed has been collected it should be stored in a cool dry place such as a basement. In his blog, Robert Pavlis, an ORG&HPS member, explains that storage in the refrigerator at this point will interfere with maturation of the embryo. <https://www.gardenmyths.com/storing-collected-seed-fridge-or-freezer> .

Your own stash of leftover seed presumably will be very dry if it is not sown within a year. The stash probably will not then be harmed by storage in a freezer. Old seed might be coaxed into germinating by using GA-3. Other approaches are soaking the seed in malt extract, beer or an enzyme-based product. (J.L. Hudson, Seedsman)

No matter how carefully you have stored your seed, whether of garden origin or purchased commercially, please do not donate it to the Seedex unless it was collected in the current year. Our reputation for offering good seed relies on donation of fresh material.

CHAFF IS NOT THE SAME AS SEED

The family Asteracea (commonly known as composite flowers) as well as some others must be prepared carefully before donation. Many of the fruits are empty and only a few contain viable seeds. Achillea, Aster, Anaphalis, Solidago and Syneilesis are but a few examples of plants whose seed heads are composed primarily of chaff.

Your seed should be thoroughly cleaned before donation. Searching through seed heads and calyces for seed can be quite time consuming. Seed is the hard, plump material which cannot be crushed between your fingers. Discard any soft, loose fibrous material.

With 8000 - 10,000 packages of seed to prepare, our packaging volunteers usually cannot spare the time to go through a pile of chaff looking for viable seed. You should hear the groans when a packer encounters uncleaned seed! In cases where the donation contains a lot of chaff, packers are told to put a generous quantity of the questionable material in each package in hopes that there are at least 3 good seeds in each order. Unfortunately, if the order is being sent outside Canada where the import of uncleaned seed is prohibited, the package might be confiscated.



An example of a recent Seedex envelope. photo: Gabriela Costea



The recipient found just one small, hard seed. The rest was chaff. photo: Gabriela Costea

If you are keeping the seed heads for your own needs, cleaning is not as important. Break apart the seed head and sow the entire contents. The few seeds amongst the chaff will likely germinate despite the non-viable material around them.

Keep these guidelines in mind when you donate to the Seedex. The lists will be permanently posted on our website for your reference.

HYDROPHILIC SEEDS WHICH ARE NOT ACCEPTED IN THE ANNUAL SEED EX. IF YOU WANT TO DONATE SOME, SEND A LIST TO THE JOURNAL FOR PUBLICATION IN THE APRIL OR MAY ISSUE.

Adonis vernalis
Amaryllis
Anemone nemorosa
Anemone quinquefolia
Anemonopsis
Anthurium
Asarum
Caltha palustris
Caulophyllum
Castanea sativa (Sweet Chestnut)
Claytonia
Clintonia
Clivia
Coptis trifolia
Dicentra
Dysosma
Eomecon chionantha
Hepatica
Hylomecon vernalis
Jeffersonia
Lindera benzoin
Medeola
Maianthemum
Nerine
Paris quadrifolia
Plagiorhegma
Podophyllum
Ranzania
Sanguinaria
Symplocarpus
Stylophorum
Trillium albidum, grandiflorum
Uvularia

SEEDS WITH SHORT VIABILITY WHICH ARE WELCOME DONATIONS TO THE SEED EX

Acantholimon
Aconitum
Anemone
Astrantia
Callianthemum
Corydalis
Daphne
Delphinium
Epimedium
Eranthis
Erythronium
Fritillaria
Gentiana
Glaucidium
Helleborus

Primula
Pulsatilla
Ranunculus
Saxifraga
Soldanella
Tanacetum
Thalictrum
Tiarella
Trillium chloropetalum, erectum, kurabayashi, rivale
Viola
Zephyranthes