



Native Seed Sowing Workshop

Presented by Heather McCargo

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WHY WILD-TYPE NATIVES

Wild Seed Project supports the propagation of wild-type native plants. Today, many commercial nurseries favor cultivars and hybrids, garden varieties that have been domesticated and bred to have characteristics such as dwarfism, specific flower color, double flowers and uniformity of growth. These traits may look nice to people, but they often lack reproductive ability or the genetic diversity that is necessary to adapt to changing environmental conditions. To perpetuate these traits, nurseries must reproduce these plants clonally, that is without sexual reproduction.

WHY GROW NATIVES FROM SEED

In the wild, most plants reproduce sexually, in other words, from seed. Sexual reproduction results in variation between individual plants, as any single plant adapts differently in its ability to cope with environmental stress such as heat, drought, flooding and other disturbances. Genetic variation is a species' best strategy for adapting to future environmental conditions, and seed propagation maintains the genetic diversity inherent in wild native plants.

HOW TO GERMINATE MAINE NATIVE SEEDS

One of the joys of propagating native plants is that you do not need expensive or sophisticated facilities. All seeds can be germinated outdoors in beds or pots. Native species are adapted to the fluctuating temperatures of our New England climate. For many natives, germination outdoors is often better than when sown in a greenhouse where the temperature is too consistent and the high humidity creates perfect conditions for rot. With outdoor propagation, seeds germinate when the conditions are optimum for each species, which is sometime during the frosty temperatures of early spring, at other times not until the heat of summer.

Seeds can be sown in seed flats or plastic pots 4"-10" in diameter and 3" or more deep and tucked in a shady spot. For the home gardener, a small nursery of 10-20 pots can be set up under a garden bench or on top of a low table. It is out of the traffic of dogs and children, shady and looks tidy. An uncovered cold frame also makes a good nursery area for seed flats and pots. It is just as easy to care for a dozen pots as it is one, and you are sure to have some good success if you try growing a variety of species. If you don't need all the plants, they can be shared with others.

SOWING THE SEEDS

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Native seeds can be sown thickly (planted close together) and labeled with the species' name and sowing date. A good rule of thumb is to sow the seeds to the depth of the thickness of the seed and roughly an eighth to ¼ inch a part. Barely cover seeds that appear fine and dust-like (if at all, see germination codes below). After sowing, cover the seeds with coarse sand, which is preferable to potting soil as the sand helps keep the seeds from splashing out in the rain). If nearby weeds are a concern, cover flats with a spun poly covering such as Reemay. Keep watered (usually every couple of days to a week) and check regularly for germination.

WAITING FOR GERMINATION

Each native seed has its own timetable for germination. This is very different from cultivated plants such as vegetables and annual flowers that have been bred and selected for rapid germination. In wild plants, seed germination is often variable with some seeds germinating immediately while others germinate irregularly over a period of weeks, months or even years. This reproductive strategy is advantageous for a wild plant because offspring are dispersed over time, therefore better adapted to deal with climatic fluctuations. Seeds that need no pretreatment will germinate anytime from a week to several months after sowing, while others need winter stratification and will germinate when the seed dormancy is overcome appropriate to each species. Flats that fail to germinate will often germinate the following year. Don't throw them out; be patient.

The following codes will give you an indication of which treatment specific species need:

Germination code A - Seeds can be sown outdoors in fall or early spring (March/April).

Aster, Columbine, Milkweed, Lobelia, Coneflower, Campanula, Wild Strawberry, Jack-in-the-Pulpit, Wintergreen, Fern spores, Spirea, Clethra, Buttonbush, Diervilla, Rhododendron, St. Johnswort

Germination code B - Seeds need a winter or cold period to germinate. Sow outdoors in the fall or winter.

Iris, Vervain, Blue-Eyed Grass, Alliums, Boneset, Bee-balm, Geranium, Joe-Pye Weed, Bunchberry, Penstemon, Liatris, Goldenrod, Violet, Aronia, Spicebush, Bayberry, Rose, Wild Plum, Shrub Dogwoods, Serviceberry, Elderberry

Germination code C - Seeds need light to germinate, sow on soil surface and leave uncovered.

All tiny, dust-like seeds (Lobelia, Spiraea, Campanula)

Germination Code D - Seeds need alternating cycles of warm-to-cold-to-warm to germinate. They can either be sown outdoors in spring or summer and will germinate the following year, or can be sown in a flat in a warm place for 3 month, then moved to a refrigerator for two months, and then moved outside in the early summer warmth.

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Canada, Turks Cap, and Wood Lilies; Black Cohosh, Viburnum

Germination code E - Seeds cannot be allowed to dry out. Sow immediately.

Pussy Willow, Bloodroot, Marsh Marigold, Trillium, Wild Ginger, Uvularia, Bluebead Lily; Nuts: Oak, Hickory, Butternut, Hazelnut, and Walnut

Germination F - Seeds take two year to germinate. Sow outside in the fall and look for germination in the second spring. A shady location prevents the flats from rapid drying and lessons weeding.

Trillium, Wild Ginger, Solomon's Seal, Uvularia, Bluebead Lily, Canada Mayflower, False Solomon's Seal, Viburnum, Witch hazel, Basswood

Germination G- Large seeds should be soaked overnight in water.

NOTE: If you find yourself with seeds that need a cold period and it's late spring, you can still sow the seeds by giving them an artificial winter. Wrap the flat in plastic or sow the seeds in moistened sand or vermiculite and seal in a zip lock bag, record the date, and put in the refrigerator. Remove after the simulated winter and put flat outside.

TRANSPLANTING SEEDLINGS INTO LARGER POTS OR THE LANDSCAPE

Many native seedlings can stay in their original flat for the first growing season. If the seedlings seem overly crowded, they can be gently divided and potted during the first summer. Otherwise, you can wait until the following spring to transplant seedlings to their new home. Don't forget to keep the plants labeled. When transplanting, clump 3-10 seedlings together per pot (unless it is a tree species). This insures that there is more than one individual and the new planting will have some genetic diversity and be able to produce viable seed. A diluted liquid seaweed fertilizer every other week will keep seedlings healthy and strong.

OVERWINTERING SEEDLINGS AND PROTECTING NURSERY AREA FROM RODENTS

Germinated pots and flats will need winter protection from weather extremes and windburn, just as a consistent snow cover supplies to a garden. Multiple layers of a winter-grade Reemay covered with white plastic works well. The plants should be frozen before covering, otherwise rodents may choose your covered nursery as there perfect nest site. Be sure to set mousetraps under the cover for additional protection.

MAKING A SEED GERMINATION BED

This method has the advantage of needing less watering that flats or pots, and the seedlings can grow to a bigger size before transplanting.

Chose a location in full to part shade for woodland species, part shade for most other species, with the exception of plants that need dry, sunny conditions, they should be in full sun.

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Make a frame out of rough-cut 2' x 10" or 2' x 12" lumber (not pressure treated, it releases too many nasty chemicals). 4' wide by 10' long will hold a lot of seedlings for several years. You can also use logs that are 6-10" in diameter. Staple some heavy gage screening to the bottom, flip over and set in place. Fill with a weed-free, compost-based potting mix. You can create your own growing medium by mixing 3 parts weed-free compost or leaf mold, 1 part vermiculite, and 1 part coarse builders' sand. (See Horticulture Magazine, March 1996, *Composted-Based Potting Soils* by Heather McCargo for an in-depth description of an organic peat-free potting mix) Seeds can be sown in 4' rows across the bed and marked with long-lasting plastic labels. If there is a nearby source of weeds such as an old field or dandelion strewn laws, cover bed with Reemay. The compost and leaf mold will contain lots of beneficial microorganisms and slowly release nutrients over time, unlike a peat moss-based potting soil that is sterile and deprived of nutrients.

WILD SEED COLLECTION PROCEDURES

1) CORRECTLY IDENTIFY THE SPECIES

Ensure that you have properly identified the species when it is in bloom and have checked with the Maine Natural Areas Program that it is not listed as a rare, endangered or protected species. For more information, visit the New England Wildflower Society's excellent online botanical key: <http://gobotany.newenglandwild.org>

2) ASK PERMISSION

If you are not collecting on your land, ask permission from the landowner.

3) RESEARCH HANDLING AND GERMINATION REQUIREMENTS

Research the germination requirements of each species before collection so that the seed is handled properly and not wasted (seeds that must not dry out, how to judge ripeness, seed storage).

4) COLLECT WITH DIVERSITY IN MIND

Look for large, healthy populations of desired species and collect seed from a number of individuals. If possible, collect seed from several populations in the same region to minimize genetic drift or inbreeding depression. Make sure the seed is ripe before collecting because immature seed often has low viability.

5) PROTECT THE REPRODUCTION OF THE PLANT

Never collect more than 5% of the seed in any population. If the species you want has poor seed set or a small number of individuals, do not collect the seed.

6) SOW THE SEEDS

Plant the seeds you harvest- do not waste any wild seed- it is precious

Good luck. Heather McCargo heather@wildseedproject.net