

Growing Native Perennials

Gale Martin

Most native perennials require that their seed be pre-treated to break dormancy prior to seeding. There are four basic types of seed treatments or planting methods that may be used to overcome seed dormancy:

Dry Stratification: Seed is exposed to near freezing temperatures (34-36 degrees Fahrenheit) for 30 or more days.

Moist Stratification: Seed is mixed with a damp inert substrate and stored in a refrigerated environment at 34-36 degrees Fahrenheit (1-2 degrees Celsius). The seed should not be frozen, as this may damage the cell walls and destroy the seed.

Scarification: Seed with hard seed-coats are scratched with sandpaper to allow moisture to penetrate into the seed and initiate the germination process.

Hot Water: Seeds that are stimulated to germinate by wildfires are treated with near boiling water.

1) Dry Stratification

Many native seeds require exposure to cold temperatures as a protective mechanism, so that they do not germinate in fall and have their tiny seedlings killed over winter. The term "seed stratification" originated many years ago when wildflower seeds were originally pre-treated by planting them in layers of damp, clean sand and refrigerating them to mimic the effects of winter. Many native seeds require exposure only to cold temperatures without the addition of moisture to break dormancy. The process of treating seeds to freezing temperatures to break dormancy is referred to as "Dry Stratification."

Most of the prairie grasses and many prairie flowers require simple dry stratification. Seed can be dry stratified by placing it in a refrigerator or freezer for 30 to 90 days prior to seeding. Large quantities of seed can be stored in an unheated building over winter in rodent-proof metal containers.

2) Moist Stratification

Many of the prairie flowers and most woodland wildflowers require moist stratification to break dormancy and yield high rates of germination. For example, Shootingstar, (*Dodecatheon meadia*) has a zero rate of germination when dry stratified, but after 30 days of moist stratification it will germinate close to a 100 percent rate.

Different species require varying lengths of moist stratification to break dormancy. Lupine (*Lupinus perennis*) requires only 10 days. After two weeks of treatment, it will often begin to germinate while still in the refrigerator. Members of the genus *Iris* require 90 days of moist stratification to yield good germination. Dormancy in most species can be broken with 30 days with this treatment.

Seed can be moist stratified by mixing it with an equal or greater volume of slightly damp, inert material. I use a handful of damp potting soil, but some nurseries use oak or pine sawdust. Vermiculite, perlite, and peat moss can also be used as the inert material. The inert matter should be only lightly dampened prior to mixing with the seed. If water can be wrung out by squeezing it, then it is too wet. Vermiculite and perlite should be moistened in a bowl or colander, so that excess water will drain off. Mix the seed and inert matter together thoroughly, place in a zip-lock plastic bag, labeled with the species and date, and place it in the refrigerator for the specified amount of time for the species being treated.

Another method of moist stratifying seed is to plant the seed directly into flats, cover them with plastic wrap to retain moisture in the soil, and store them in a refrigerator or walk-in cooler. If such facilities are not available, the flats can be seeded in fall, and stored over winter in an unheated building or greenhouse. Make sure that the flats are protected from damage by mice and other animals during winter storage.

Timing of Moist Stratification Pretreatment

The initiation of moist stratification should be timed so that the seed will be removed from the refrigerator at the appropriate time of year for optimal germination. Cool-season plants should be started in mid-March to early April when temperatures are still cool. Warm-season plants can be started once the air temperature reaches the 70s or low 80s F.

3) Scarification

Seeds with hard seed coats often require scarification, or scratching of the outer seed surface, to allow penetration of water into the seed itself in order to initiate the germination process. This can be accomplished using a coffee can lined with fine grit sandpaper, placing seed inside and shaking vigorously for 5 to ten minutes. Some genera, such as Baptisia and Iris, require scarification followed by moist stratification. Following scarification, the seed should be moist stratified as described in the directions above.

4) Hot Water

A few species are known to benefit from treatment with hot water, which mimics the effect of a wildfire. Some seeds have dormancy mechanisms that require exposure to high temperatures, signaling that a fire has recently occurred and there will be open soil available for germination and growth of new seedlings. Place the seed to be treated in a bowl. Heat water in a teakettle to boiling, then turn off the heat and allow the water to cool for a minute or two. Pour the hot water over the seed and allow it cool down to room temperature. Pour off the water, and the seed can be seeded directly, or in the case of New Jersey Tea, mixed with a damp inert material and moist stratified for 30 days prior to seeding.

Note: Gale Martin is proprietor of Natives in Harmony, a native plant nursery working hard to make Ohio genotypes available for anyone interested in using natives to create habitat for native pollinators, birds, and other native wildlife species.

If you are new to native plants, Natives in Harmony is a great place to start. Knowledgeable staff members are always willing to answer questions about specific plants and gardening with natives. Before visiting the nursery, we encourage you to peruse the online listing of many of the plants available at the nursery.

Species availability changes daily throughout the season. Many species that sell out early are replenished in summer and fall as new seedlings are transplanted into pots. Please call and we would be happy to email you a copy of our current inventory. We generally have over 200 species available and may have closer to 300 or 400 at times during the season, although not all of them are listed on the website. If you know what you need in advance, we may be able to contract-grow plants specifically for you.

For directions and an idea of the plants that may be available, explore our website at www.nativesinharmony.com or call Gale Martin at 419-688-9800.

Natives in Harmony is open April 28 –September 30, 2019, Sunday and Monday 12 pm to 6 pm and is also open by appointment by calling 419-688-9800 or emailing: gale@nativesinharmony.com

Common Native Wildflowers Latin name	Common name	Stratification M (moist) D (dry) S (scarification also required) L (needs light to germinate, sow on top of soil) C (needs cool soil to germinate)
Allium cernuum	Nodding Wild Onion	30 days M
Asclepias species	Milkweeds	21 days M
Aster, Symphyotrichum, Eurybia spp	Asters	30 days M
Baptisia species	Blue and White False Indigos	90 days M, S
Camassia scilloides	Wild Hyacinth	30 days M
Chamaecrista fasciculata	Partridge pea	10 days M
Coreopsis lanceolata	Lance Leaved Coreopsis	10 days M
Echinacea purpurea	Purple Coneflower	30 days D
Eryngium yuccifolium	Rattlesnake Master	30 days D
Eupatorium, Eupatoriadelphus spp	Joe Pye Weeds, mistflower, Bonesets	30 days M, C
Hibiscus species	Rosemallows	60 days M
Heliopsis helianthoides	Ox-Eye Sunflower	30 days M
Liatris species	Savannah and other Blazingstars	30 days M
Lobelia species	Cardinal Flower, Great Blue Lobelia	30 days M, L
Monarda species	Wild Bergamot, Bee balm	30 days M
Pycnanthemum species	Mountain Mints	30 days M
Penstemon species	Penstemon, Beardtongues	30 days M
Ratibida pinnata	Gray-headed coneflower	90 Days M
Rudbeckia species	Black-eyed Susan, Showy coneflower	30 days M
Silene species	Royal Catchfly, Starry Champion	60 days M
Silphium species	Compass-plant, Prairie Dock, etc.	30 days M
Solidago species	Goldenrods	60 days M
Tradescantia species	Spiderworts	120 days M
Verbena species	Blue & Hoary Vervain	30 days M
Vernonia species	Ironweeds	30 days M
Veronicastrum virginicum	Culver's Root	60 days M
Zizia species	Golden Alexander species	60 days M, C
Schizachyrium scoparium	Little Bluestem	No cold stratification required