

Native Seed Winter Sowing in Closed Containers

What Is winter sowing?

Winter sowing is a method of starting seeds outdoors in winter, taking advantage of natural conditions to break dormancy and allow seeds to germinate at the right time in the spring.

It works best in regions that experience freezing or near-freezing temperatures for several months of the year. This method may be used with many types of seeds, it is particularly well suited to those that require periods of cold in order to germinate (a.k.a. cold stratification). It is ideal for native plants since it closely mimics how mother nature prepares them to grow.

Why winter sow in a container?

In nature, not every seed that is produced will germinate. Seeds get eaten, washed away, or don't have access to appropriate conditions needed for them to grow.

By using containers, we increase germination and seedling survival rates by protecting them from challenging conditions. This method also requires simple supplies – no need for heat mats or grow lights. Winter sown seedlings do not require hardening off and are stronger and sturdier than those grown under artificial means.

When should I winter sow?

In Northeast Ohio, the best time to winter sow is December through February. The exact timing for sowing a particular species is based on its germination requirements, or what the seed needs to experience in order to break dormancy.

Each species of plant has its own growing “code” associated with it which helps gardeners to know what to do. The code is a letter, and is sometimes followed by a number. For example: Butterfly Weed (*Asclepias tuberosa*) is coded with C(30), which means it needs cold-moist stratification for at least 30 days. Wild Bergamot (*Monarda fistulosa*) is coded with ‘A’, which means it requires no stratification. You will be most successful if you understand the needs of the seeds you want to grow and proceed accordingly.

For example, sowing a species that is coded C(90) in late February will probably yield poor results as there isn't sufficient time for the seeds to experience the necessary cold temperatures needed to germinate.



You can find more detailed information about germination codes on our website at <https://greatercleveland.wildones.org/seed-guide/>

How to Winter Sow

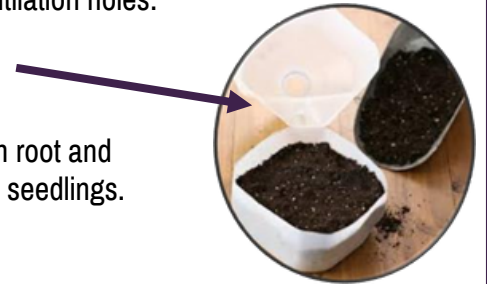
Supplies

Containers:

Plastic: milk jug, lettuce clamshell, etc. Containers should be deep enough to hold at least 4 inches of soil, have drainage holes in the bottom and the top should be clear/translucent with ventilation holes.

If using a milk jug or other closed translucent container that does not have a lid, it will need to be cut in order to create a bottom and top portion. Leave a portion uncut to create a hinge. (best choice for milk jugs)

Containers should also be sturdy enough to withstand weather, allow room for both root and shoot growth and have easy to access for checking on, watering and transplanting seedlings.



Soil:

A good potting mix that is sterile (peat based and coconut coir based are most popular)

Pre-moisten your soil. You want it damp enough that it feels wet and it isn't crumbly but not dripping wet

****do not use straight compost or top soil or re-use old potting soil**

And: Seeds ~ Scissors or knife ~ Plant labels ~ Waterproof Permanent Marker (garden, laundry, wax China)
~ Duct tape or zip ties or wire ~ drill or awl or sharp nail or scissors

Directions

- 1 Poke 4-6 drainage holes in the bottom of your container with a drill, awl, sharp nail or scissors (more holes for larger containers). If using a milk jug, leave the cap off for ventilation. If using a container with a lid like a clamshell, poke holes in the top for ventilation.
- 2 If using a container that needs to be cut, like a milk jug, cut it so that you have at least 4" on the bottom for soil depth and leave about 1.5" uncut at the base of the handle to create a hinge.
- 3 Fill the container with pre-moistened soil. Tap the container on a hard surface a few times to remove air pockets.
- 4 Sow the seeds by sprinkling them on the soil – avoiding the container edges. Lightly press seeds into soil. Refer to seed germination codes for recommended depth and cover with more soil. As a rule, seeds should be covered only as deep as they are wide. Very small seeds should be surface sown.
- 5 Create a plant label with name of species. Place in soil so that it is mostly covered. ****NOTE** – even permanent garden markers fade over time, so it is a good idea to label your containers in several ways (bottom, top, plant label)
- 6 Seal the container with the lid or by taping (using duct tape or punch holes to use zip ties, wire, pipe cleaners, etc.),
- 7 Place the container in an area that receives winter sun and precipitation. Do not place the container under eaves or on a covered porch, but do ensure they are protected from blowing over in the wind or being knocked over.
- 8 Check on your containers once daytime temps begin to warm to ensure they are staying moist. You shouldn't need to water for several months. Once seeds sprout and daytime temps are around 50F, open containers during the day, but reclose them if temps drop much below that at night. Native seedlings are hardy but can be killed by frost.
- 9 Once seedlings have several sets of leaves and the container is becoming crowded, separate into clumps of 3 to 4 seedlings and plant up into a larger container or directly into your planting area.

- **What kind of containers can I use?**
 - Requirements: clear or translucent on top (to allow light), have holes on the top and bottom, be sturdy enough to withstand the elements, and deep enough for 4in of soil with room for growing seedlings. Milk jugs are a great starter.
- **What potting medium should I use?**
 - A sterile potting mix (e.g. peat- or coconut coir-based). Dug topsoil or used potting soil may have weed seeds or disease.
- **Does the soil need to be moist?**
 - Yes! Pre-moisten your soil and periodically check your containers. Condensation on a warm day and lifting the container to judge its weight are two ways to check. If too dry, place the jug in a pan of water to allow water to soak in through the bottom holes. Or water carefully from the top; a strong stream of water may displace soil and seeds.
- **What if the container gets buried in the snow?**
 - Great! We want these containers out in the elements. As long as they stay upright, they're fine.
- **How deep should the seeds be?**
 - As a rule, seeds should be covered only as deep as they are wide. Very small seeds should be surface sown. Remember that many seeds in nature don't have anyone to bury them!
- **I love this method! Where can I get more native seeds?**
 - Hurray! Come to a Wild Ones Greater Cleveland Winter Sowing workshop or seed swap, visit a seed library (e.g. Shaker Nature Center or West Creek Conservancy), or order native seeds online (e.g. Ernst Seed, OPN or Prairie Moon)
- **Should the container be in sun or shade?**
 - Containers should be in at least part sun. Anecdotally, containers in more sun germinate earlier.
- **When can I transplant the seedlings?**
 - Once seedlings have several sets of leaves and the container is becoming crowded, separate into clumps of 3 to 4 seedlings and plant up into a larger container or directly into your planting area.
- **What are common mistakes/problems I can avoid when sowing?**
 - Forgetting to remove the cap or drill drainage holes. We want moisture to get in AND out
 - Not enough moisture in soil. Remember to check and water!
 - Containers blowing over or being knocked over. Place in a secure location, safe from pets.
 - Not enough soil: Remember to add at least 4 inches and tap against a hard surface to eliminate air pockets. Soil that isn't deep enough will dry out faster and will limit root development in your seedlings.
- **What are common mistakes/problems I can avoid in the spring?**
 - Too dry or too much moisture. If too wet, open the container to let it dry out and then reclose it.
 - Slugs eating your seedlings. Place a coffee filter in the bottom of the container (must be done while sowing), elevate containers off the ground (e.g. on a table) or place on non-soil surface (e.g. concrete)
 - Seedlings overheating. Once sprouted, watch temperatures. When they start to reach 50F-60F in the daytime, open the jugs during the day and close at night or move the seedlings into shade if you don't want to open/close yet.
- **What's a typical timeline to expect?**
 - Dec-Feb: Winter Sow; Mar-May (or later): Germination and Growth; Jun (or later): pot up or plant out

Winter Sowing Visual Guide



Poke ~4-6 bottom holes
Make sure there's a hole in
the top (Cap OFF)



Cut in half; leave a 1" hinge
Make sure at least 4 inches
of soil can fit



Fill with 4" Pre-Moistened
Potting Mix; Tap on hard
surface to settle



Add native seeds + label
Avoid edges of container
Lightly press seeds into soil



Seal the container
Label outside top or bottom
Make sure cap is OFF



Put outside until spring
Ensure it will get snow but
won't be knocked over



Once germination occurs and temps >50F,
EITHER open containers during day/close at
night OR move to more shade (Apr-May)



Once seedlings have several sets of leaves
and are getting crowded, divide into clumps
of 3-4 and repot or plant out (~Jun or after)