

Winter Sowing: Easy Greenhouses for Seeds

Overview

Winter sowing is an easy and fun way to experience the growth of plants that works with nature instead of using artificial light and heat sources to germinate seeds. Winter sowing involves sowing seeds in translucent plastic bottles or jugs which serve as mini-greenhouses. The bottles are left outdoors in winter. In the spring, as the environment warms, so too do the seeds in the bottles, and the seeds sprout when the conditions are right for them.

This setup enables seeds to undergo *cold stratification*. Stratification is a defense mechanism that assures seeds don't germinate before they should. (Parker, 2022) Seeds without that defense might sprout in the fall and be killed by the cold of winter. So, seeds use the cold as a requirement before germination can begin.

Besides cold stratification, winter sowing is low cost and low maintenance! It requires no grow lights, heat mats, or indoor space. Once seeds are sown, they are left outside, exposed to the elements. There's no need for daily care or attention. It's also a great way to grow native species! Many native plants require cold-moist stratification. (Wagar, 2023) Winter sowing is a great way to talk about invasive species and actively participate in returning native species.

Materials

- Clear, recycled containers (e.g., milk jugs, soda bottles, water bottles). Containers must be able to let light in.
- Potting mix, pre-moistened. NOT dense garden/yard soil.
- Seeds (see list of possibilities)
- Marker and labels
- Duct tape for sealing
- Tool for cutting (awl, ice pick, knife, scissors, box cutter, etc.)

Procedure

1. Clean and Prepare Containers. Wash containers. Cut or punch drainage holes in the bottom. Many small holes work best.
2. Cut 3/4 of the way around the lower third of the bottle. Leaving 1/4 uncut creates a hinge so that the top can be tipped to the side for easy addition of soil, planting, and removal of the grown plant.
3. Add moistened potting mix (Not soaking wet, moist...like a damp sponge) to 1/2" from lip of bottom section of the bottle.
4. Sow & label. Plant seeds according to depth listed on the packet. Label containers inside and out with seed type and date. Marker on the outside may be bleached out in the sun. Include a label inside the container for safety.

5. Seal Containers. Close lid and use duct tape to seal. Remove caps from bottles! Any moisture that gets in will be beneficial.
6. Place in a sunny, sheltered outdoor location that will receive precipitation.

Timing

Reputable sources are inconsistent with evidence-based advice. Planted bottles can be placed outdoors from late fall and throughout the winter. The latest date for placing outside depends on the seed and the amount of stratification needed, but generally, 4-6 weeks before the 'last frost date' is recommended. However, not all seeds require stratification and will germinate as soon as the soil temperature reaches a certain level. (Wagar, 2023)

In the Spring

Once seedlings appear (~2" tall) and frost risk is low, open containers during the day to acclimate, closing at night. Transplant into final growing locations after 'last first date.'

Classroom Adaptation: Bring Winter Sowing to School

- Demonstrates seed dormancy, stratification, botany life cycles, and ecology.
- Incorporates recycling and environmental science lessons.

Setup & Tips

- Use smaller or easier-to-handle containers like 500ml, 1L, & 2L bottles.
- Plant the bottles at the end of the fall term.
- Encourage documentation: journals, photos, moisture checks, growth charts.
- Integrate curriculum areas: science (botany), math (measurements), art (labeling/design), environmental studies (native plants, sustainability).

References:

Parker, Katie (2022, Jan 27). Seed stratification: What seeds require cold treatment. University of Illinois Extension. <https://extension.illinois.edu/blogs/good-growing/2022-01-27-seed-stratification-what-seeds-require-cold-treatment>

Wagar, Beverley (2023, Jan 17). Winter Sowing: Before You Start. Royal Botanical Gardens. <https://www.rbg.ca/winter-sowing-part-one/>