

Winter sowing seeds in milk jugs or similar containers is a low-maintenance, effective way to start flowers and vegetables for your garden. The sealed milk jug acts like a mini greenhouse, causing seeds to germinate as soon as conditions allow, usually several weeks ahead of direct sowing in the ground. Because they are sown outdoors in an unheated environment, there is no need to “harden-off” plants by gradually exposing them to outside temps. Seeds sown in this method also undergo several freeze/thaw cycles that soften or break the seed coat (known as stratification).

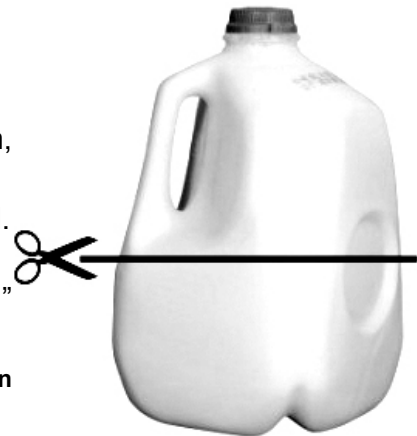
Containers

Though Milk Jugs are most commonly referred to for this method, a number of types of plastic containers can be used. Containers should:

- Be semi-transparent (not opaque)
- Allow for at least 2” of soil depth, and ideally 4” or so of room for plant growth (small butter tubs are not ideal for this use for example)
- Not easily tip over (2-liter bottles are not ideal for this reason)

Prepare the milk jug by punching drainage holes in the bottom, 4 holes around ¼” each are usually sufficient. You can use a screwdriver heated over a flame, an awl, or a small power drill. Starting at the handle, cut the milk jug horizontally, at least 2”

up from the bottom, almost all the way around, leave approx 1” connecting the handle to the base to act as a hinge. **Note: You do not need the milk jug lid, the top has to stay open to allow moisture in and out. If using a container that was previously used for something other than food (for example a jug of windshield wiper fluid) use caution, thoroughly clean the container with a diluted bleach solution, and do not use the jug to plant anything edible.**



Labeling

Be careful and thoughtful when labeling - nothing is worse than having a dozen blank containers at the end of the season and having no idea what each one is. Many seedlings and small starts are very difficult for even well trained gardeners to recognize. It's recommended that you label jugs with paint markers and cover the writing with a strip of packing tape. Sharpies (indelible markers) also work if covered, but might fade when exposed to the sun. When using a container with a removeable lid such as a yogurt container, DON'T only label the lid, but label the container instead or in addition to.

Soil

When sowing seeds, it is usually recommended that you use seed starting mix. Unfortunately, it can be difficult and expensive to buy seed starting mix in large enough quantities to fill several milk jugs to a 2” depth. For that reason, you may wish to use amended potting mix, or better yet - make your own seed starting mix. What's the difference?

Seed Starting Mix - A sterile, soilless mix usually made with perlite, vermiculite, peat moss, or shredded coconut shell. It is very light and allows for strong root development. It is also sterile, which means there are no plant diseases (pathogens) to worry about.

Potting Soil - Potting soil is usually amended garden soil. Usually additives such as fertilizers, shredded organic material, perlite, vermiculite, and others have been mixed in. These additives lighten the soil for better root development and help the soil retain moisture.

Garden Soil - Usually unamended top soil of poor quality. It will be too dense for good root development. Because there is usually no or low organic material the soil dries out very quickly or offers poor drainage.

If using amended potting mix....

- MAKE SURE the potting mix does not include any fertilizers! Fertilizers can burn and kill new seedlings.
- It is recommended that you use a large mesh screen to sift the potting mix, most inexpensive potting mixes contain twigs, bark, and rocks which can create pockets where new roots won't grow.
- Amend the potting mix with perlite, vermiculite, or most ideally sphagnum peat moss. When using peat moss, it is important to follow a ratio of 1:2 (1 part peat moss to 2 parts garden soil) too much peat moss can make the soil too acidic. When using perlite or vermiculite, a lighter ratio of 1 part amendment to 3-4 parts soil should be used.

The A+ Gold Star Method....

- Start with 4 parts screened *finished* (aged) compost (fresh compost will likely have uncomposted bits and possibly pests/pathogens)
- Add in 2 parts perlite or vermiculite
- Add 2 parts peat moss

What to plant.. and when?

There are essentially 3 periods and types of plants to keep in mind for this method

Hardy Perennials, Hardy Annuals - Jan through Mid Feb

Seeds that require cold stratification, have thick seed coats, and can handle being frozen or going through several freeze/thaw cycles. Applies to some native plants, many perennial flowers. **Language to look for:** *"hardy annual, sow in place in fall or winter", "sow 4-6 weeks before average last frost", "requires a period of cold dormancy/stratification"*

Tender Perennials/Cold Crop Veg - Mid Feb - March

Small seeds that might require cold stratification for a specific period of time, or require exposure to light to germinate (mostly applies to native plants/wildflowers). Cold crop vegetables such as broccoli, kale, brussels sprouts, and many herbs such as thyme, oregano, parsley - some

tomato varieties (usually heirlooms). **Language to look for:** *“Start indoors 3-4 weeks before average last frost”, “sow in place around average last frost date”, “requires light to germinate”, requires a period of cold stratification 30-60 days”*

Tender Annuals/Summer Veg - March - April

Plants that require warmer temperatures to germinate, and usually don't reach maturity until late summer such as tomatoes, peppers, basil. **Language to look for:** *“Direct sow after danger of frost has passed”*

Method

- **Fill the container to a minimum 2” soil depth** with slightly damp (but not sopping) soil mix, or use dry mix but be sure to mist the top of the soil lightly to secure the seeds in place and add moisture for stratification and later germination.
- **Plant seeds paying close attention to package instructions** regarding soil depth and light requirements
- **Seal the cut seam** around the milk jug to the best of your ability. It does not need to be 100% air tight, but do the best you can. Packing tape seems to work best, avoid masking or painters tape.
- **Check regularly when day time temps remain around or above 40°** (remember, the temps inside the milk jug may be as much as 10 degrees warmer). **Make sure the soil is kept moist.**
- Once seedlings have emerged, you may wish to cover the milk jugs with a blanket if temps drop below freezing in at night (optional), but make sure you **keep checking to ensure the soil hasn't dried out.** This generally isn't a problem unless enough moisture didn't get in through the winter or the drainage holes are too large.
- **Pay close attention to daytime temps**, when they approach around 50°-60° degrees, **especially on sunny days**, it is time to **unseal the containers and flip back or remove the tops** so as not to “cook” your seedlings.
- **Don't forget to cover things back up at night** (you do not need to reseal anything at this point, just flip the lids back on)
- Once your seedlings are happy, healthy starts, (this generally means they have produced at least 2 true leaves) it's time to transplant them. Use a popsicle stick or something similar to gently lift the seedling. You may wish to “up pot” the plants gradually to allow them to build strong roots before planting in the ground.

Plant Recommendations - these are some recommendations from others who have used this method. This is by no means a complete list. In theory most anything will work in this method provided the timing and conditions are right, read seed instructions carefully to determine when to plant.

Hardy Perennials, Hardy Annuals

Butterfly Weed, Milkweed *Asclepias sp.*
Columbine *Aquilegia sp.*
Evening Primrose *Oenothera speciosa*
Delphinium sp.
Tobacco Flower *Nicotiana*
Kale
Broccoli
Calendula

Balloon Flower *Platycodon*
Wild Foxglove *Digitalis purpurea*
Monkshood *Aconitum carmichaelii*
Bellflower *Campanula*
Lupine *Lupinus*
Brussels sprouts
Salvia (Sage)
Bee Balm *Monarda sp*

Tender Perennials/Cold Crop Veg - Mid Feb - March

Catmint <i>Nepeta sp.</i>	Hollyhock <i>Alcea sp.</i>	Spinach*
Thyme	Oregano	Parsley
Helen's Flower <i>Helenium</i>	<i>Echinacea</i>	Zinnia*
Marigold	Impatiens	Cosmos*
Lettuce*	Bok Choy	Beets*

Some heirloom tomato var.'s (read seed instructions to determine, look for "start indoors 4-8 weeks before avg. last frost)

Tender Annuals/Summer Veg - March - April

Basil, Tomatoes, Peppers, Cucumber*, Melon*, Sunflowers*

*These plants should be direct sown when the ground permits but can be covered with a milk jug or water bottle cloche for an earlier start. See note below.

Cloche-ing refers to sowing the seed directly in the ground when the soil is slightly workable, and covering the seed with a milk jug cloche - which is simply a milk jug or other container that you've cut the bottom off of (2 liter soda bottles work well for this). The same rules apply about checking moisture levels and uncovering the seeds during the day. You may wish to place a rock on top of the cloche to hold it in place, however it is then all the more important to check that the soil is getting adequate moisture.