



# Seed Starting Indoors

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Raising plants from seed is an enriching, economical way to start a garden that the entire family can participate in and enjoy. In addition, you can get a jump-start on the season instead of waiting to sow them all outdoors after the last spring frost. You do not need much space or extra time to raise seedlings at home. It only takes a few supplies (**seeds, containers, soil, light, and fertilizer**) and a few minutes each day to water and check on them.

First, consider the type of seed you would like to use. Think about what flowers you enjoy or which vegetables you like to eat. A little research at your local library, browsing thru seed catalogs, or using the internet are all excellent sources of information. If you are a novice, try to keep your selections limited and fairly simple. Some of the **easiest seeds to start** are Coleus, Marigolds, Sunflowers, Zinnias, Beans, Cabbage, Lettuce, Radishes, and Tomatoes.

Next, you need to decide when to sow your seeds so that the plants are ready to go outside after the last average **frost-free date** (the last day of the season in which the temperature falls below 32 degrees) for your area. In Northeast Ohio the safest time falls somewhere around May 15<sup>th</sup> to May 31<sup>st</sup>. Your specific location and micro-climate should also be taken into consideration, especially if you want to plant outdoors much earlier than May 31<sup>st</sup>. Using the last frost-free date as your baseline, consult the seed packet directions to determine the planting date. For example, if the packet instructs you to start the seed 8 weeks before the last frost, count the weeks backward from May 31<sup>st</sup> to come up with an indoor planting date the first week of April.

You will need **sterile containers** in which to plant the seeds. You can purchase specially made plastic flats, manure/peat pots at our stores, or you can recycle containers from around the house. Butter tubs, yogurt containers, the bottoms from milk cartons, or plastic beverage containers will work. You will need to punch holes in the bottoms for drainage and clean them. First wash the containers in hot, soapy water, then place them in a mixture of 9 parts water to 1 part household bleach for about 20 to 25 minutes to sterilize them.

The type of mix you use in the containers is very important. Garden soil will not work; it may harbor various pathogens or insects that can harm the tiny seedlings. You also need a sterile mix that will drain well so the seeds do not become waterlogged and rot. Look for a **seed starting mix**, like Petitti's Seed Starter, made of peat moss, perlite, and vermiculite. The peat moss provides light moisture retention while the perlite and vermiculite provide aeration. Before you add the mix to your containers water it so that the mix is moist but not dripping wet. Once the soil is ready, spread it into the containers to within about a half-inch of the top. Plant the largest seeds you have into the deepest containers you have, as their roots will take up the most space (melons, squashes). As a general rule, seeds should be **planted at a depth of about 2 ½ times their width**. The bigger the seed the deeper it is planted. Push the larger seeds gently into the mix and then cover them with a sprinkling of additional mix. You can use a pencil to make a small planting hole for the seeds. Very small seeds are often spread on the top and left uncovered. You can tamp them down a bit to keep them from spreading around when you water them. Always refer to the instructions on the seed packet for correct spacing and germination information. There are some varieties of seed that will need special conditions for good germination.

Try not to be tempted to sow as many seeds as you can into your containers. Crowded seedlings will need to be thinned out later and may be more prone to "**damping off**", a fungal condition that affects seedlings. You may save leftover seeds for the next season in a cool dry place, or you can share with a fellow gardener. The goal is to have seedlings with plenty of room to grow, ideally one plant per small pot. This will also make transplanting into the garden easier because you won't be pulling plants apart and damaging tender roots.

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After planting, the seeds will need to be **gently watered or misted**, and kept thoroughly moist to germinate. The seeds will swell as they absorb water. One good way to keep the seeds moist is to cover or tent the containers with clear plastic or glass. Seeds generally germinate within 3 to 30 days of sowing depending on the variety. Again, check the seed packet. Then, once the seeds are up, remove the covers. They will no longer need the extra humidity.

**Soil temperature** is a key element in seed germination too. Many common varieties of vegetable and annual flowers sprout quickly at soil temperatures of 65-70 degrees or higher. If the soil is too cold the seeds will take longer to germinate and the seedlings will be weak when they do germinate. Check the seed packet for the best germination temperatures. You can purchase heating mats to place under your containers that can be set to specific temperatures, or try the top of the refrigerator as a heat source. Once the seeds have sprouted remove them from the heat source.

Your seedlings will now need at least **12-16 hours of bright light** every day. A south or southwest window is best, but be careful that the seedlings are not too close to the window or they might get too hot on a sunny day. Once the seedlings are up they will grow nicely at about 65 degrees. If you do not have enough natural light you can supplement with artificial light. Florescent tubes in brackets can be placed over the containers and adjusted as the seedlings grow. They should be no further than 4 inches from the plants or they will stretch and look spindly. Special growing lights can also be purchased but will add some cost to the project.

Check the seedlings each day for water and health needs. If your seeds were crowded into a flat they will need to be **transplanted** into larger containers or **thinned** (plucking out the extra plants) so that each plant has enough room to grow. Be gentle when transplanting or thinning, the root systems are still very delicate. Thin out the weakest or spindly looking plants first, then re-thin any additional seedlings for optimal growth. Your seedlings will grow best in conditions where there is good **air circulation** between and around the plants. After 4-6 weeks you will need to begin **fertilizing** the seedlings. By that time they will have used up the stored food contained in the seed. Use a half strength solution of any water-soluble fertilizer like Miracle Gro every 10 to 14 days.

When the weather is warmer outside and the seedlings have grown to planting size it is time to condition them for outside growing. This process is called **“hardening off”**. About 2 to 3 weeks before the seedlings can be transplanted in the garden they should be placed outside in a shaded, sheltered area for a few hours. Protect the tender seedlings from harsh sunlight, strong winds and rain. Each day increase the exposure to the outside environment. Be sure to bring them in each evening. As you gradually expose the plants to variances in temperature, sun and wind be sure to check them often. They will most likely need extra watering. Once a seedling has completely wilted or dried out it is almost impossible to revive.

**Prepare the garden** for your seedlings during the “hardening off” process. Till or loosen up the soil, amend it with compost or Petitti Planting Mix. Be sure to avoid any fresh manure as it can quickly burn out the young plants. Make sure the soil is warm and free of competing weeds. The day before you transplant try to moisten the soil. Choose a cloudy day in the early morning or late afternoon to do the actual transplanting. Make a small hole in the soil that is about the same size as the root ball. Gently take the plants from their containers and place the entire soil ball into the moist garden soil. Firm the soil around the plant. Many young plants, particularly tomatoes and peppers can be planted more deeply into the garden soil than they were in the pots. If you are using pre-formed peat pots make sure the top edge of the pot is below the soil. If left above ground it can “wick” moisture away from the plant.

A **root-stimulating product** like Petitti Root Stimulator or Espoma Bio-tone can be used after planting. Follow the label directions. These products add nutrients, promote healthy roots, and can also help reduce or eliminate a condition known as “transplant shock”. This is a condition that affects seedlings when the surrounding environmental conditions dry out the plant and the roots and stems cannot take up nutrients and water quickly enough to maintain the health of the plant. Finally, mulch your new garden plants, no more than 2”, to suppress weed growth and keep the soil evenly moist.

Other helpful products that we help you and your new plants flourish:

- Preen or another pre-emergent weed preventer to eliminate pulling weeds by hand (follow label instructions for best results)
- A soaker hose to insure deep, even watering thru the season
- All purpose, granular fertilizer like Plant-tone and/or Osmocote for slow-release nutrition
- Garden safe insecticide like Eight or Espoma Insecticidal Soap
- Multi-purpose fungicide like Fung-onil or Copper Fungicide
- Stakes, rings or supports for your rapidly growing plant material
- Garden twine, ties and fasteners
- Name labels and tags
- Clean, sharp pruners
- Gardening gloves