

Many seeds can be sown outside directly in your garden soil. However, sowing indoors provides better control over germination conditions. Plus, it is an essential part of starting plants like basil and tomatoes which need a longer, hotter growing season than the PNW can provide. As your garden grows, you may also appreciate practicing **succession planting**, to increase crop availability by allowing you to start second or third plantings indoors while your earlier ones are growing outside. Remember, the more love and attention you can give to your seedlings in their early stages, the happier and more robust your adult plants will be.

## WORDS TO KNOW

**Germination:** the sprouting of a seed

**Cotyledons:** embryonic leaves in seed-bearing plants, the first to appear on a sprout

**True Leaves:** the adult leaves of a plant, often quite different from cotyledons

**Planting Medium:** the material, (i.e. soil, peat moss, etc.) that a seed or start is planted in

**Root Bound:** when a plants' roots over fill their container and begin to stunt their growth

**Scarifying:** nicking, softening, or weakening the seed coating to improve germination

**Leggy:** having an excessively long and straggly stem that may result in a weakened plant

**Damping Off:** A soil-borne fungal disease that rots the stem & roots of new seedlings

## SEEDLING STAGES AND NEEDS

There are three stages of seedling growth that have somewhat different needs.



STAGE 1	STAGE 2	STAGE 3
Planted seeds are just beginning to sprout but may not have broken the surface.	Seedlings have sprouted but only stems and/or <b>cotyledons</b> are visible.	Seedlings have started to develop <b>true leaves</b> . They are now miniature, delicate, adult plants.
<b>Needs:</b> <ul style="list-style-type: none"> <li>▪ Constant moisture &amp; warmth</li> <li>▪ Not much light</li> <li>▪ Humidity dome</li> <li>▪ Heat mat</li> </ul>	<b>Needs:</b> <ul style="list-style-type: none"> <li>▪ <b>Immediately</b> take off lid</li> <li>▪ Bright light</li> <li>▪ Good air circulation</li> <li>▪ Less moisture &amp; often less warmth than stage 1</li> </ul>	<b>Needs:</b> <ul style="list-style-type: none"> <li>▪ Lots of Light</li> <li>▪ Warmth</li> <li>▪ Water</li> <li>▪ Air circulation</li> <li>▪ Fertilizer</li> </ul>

### TIMING IS IMPORTANT

If you start tomatoes in January, they'll be **leggy** before they can be transplanted out. Many seed packages have planting recommendations based on the "last frost date", which in the Seattle area is generally April 15th. Be careful, though—the last frost may be several weeks earlier or later depending on the weather, which changes each year. Bear in mind, too, that heat-lovers such as tomatoes and basil may need to be indoors longer than you'd originally planned if we have a particularly cold, wet spring.

### BEFORE YOU START

Learn special needs your particular seed may have beforehand (chilling, **scarifying**, presoaking, exposure to light, etc.) Most seed packets will tell you, or you can consult a book (see list at end). For example, sweet peas, garden peas, and beans all **germinate** better if soaked overnight before planting. Many common seeds can be planted without special treatment. Be sure to moisten your soil **medium** before sowing. A good rule of thumb for planting depth is to plant only 2x as deep as the size of the seed. Some seeds don't even require coverage, and will germinate on the surface of the soil.

### TRANSPLANTING

Heat loving plants may need to be moved into larger pots before it's time to plant them out in the garden. Some people start tomatoes in cell packs, transplant them into 4" pots, and then transplant them a third time into 6" pots, in order to get the largest possible plants to jump-start their tomato season. Try to transplant your seedlings before they get **root-bound**. Use care when transplanting! Be careful not to disturb the roots as you gently coax them out of their containers. Use a good transplanting fertilizer at the recommended rate.

### HARDENING OFF

Before planting any seedlings outdoors, it's good to harden them off for a few days before moving them outside permanently. Hardening off is done by moving seedlings outside for small amounts of time, working up to an entire day, and then bringing them back in at night. This will help acclimate them to outdoor temperature swings, sunlight & wind.

## MATERIALS YOU WILL NEED

### 1. Seed Starting Medium

Your seed starting medium should be sterile, light, and free of weed seeds. Commercial Seed Starting Mix, available in small or large bags, is ideal. If you plan on keeping the plants in the same container for some time, you can use potting soil amended with slow release fertilizer in the bottom half of the pot. If you want to mix your own seed starting medium, here are some great recipes to try from the Maritime NW Garden Guide:

HOMEMADE SEED STARTING BLEND	COMMERCIAL SEED STARTING BLEND
1 part soil or composted sod	1 part sphagnum moss or coir
1 part leaf mold, moss/thatch or yard waste compost	1 part perlite or vermiculite
1 part sand, granite, grit or pumice	1/2 part vermicompost (worm castings)
	1 part sand or pumice
<i>Sterilize soil &amp; compost on a tray at 250° in your oven to prevent seeds and pests</i>	<i>If using sphagnum moss, add 1/2 cup agricultural lime for each cubic ft. of soil to balance pH</i>

### 2. Pots, Trays & Humidity Domes

When deciding on your seed starting setup, the best options are ones that are easily manipulated, well-draining, and that can be covered by a humidity dome.

Plastic cell-packs are a good choice, but be sure to use ones large enough to accommodate the specific plants you are growing. Peat pots and Jiffy peat pellets are great because they eliminate transplant shock for plants with delicate root systems. Smaller trays with drainage holes can be used instead of pots. And as always, to save some money and reduce waste, recycled materials such as egg cartons or toilet paper tubes make perfect seed starting cells. Place drainage trays underneath the smaller trays or cell pots, to catch water and make transport easier. Whatever setup you use, make sure it is clean. If you are reusing materials, wash with a mild soap & bleach solution.

To top it all off, lids ensure that moisture levels are kept constant until the seeds have germinated. Purchased plastic lids or **humidity domes** fit well over standard seedling trays. You can make your own lids using clear or black plastic and some sort of support to hold it above the plants. For small setups, pot(s) can simply be enclosed in a plastic bag. And finally, if you'd rather focus on your seeds than the complications of setup, Sky offers a number of kits and windowsill greenhouses that are easy to use and make good use of space.

### 3. Heat Source

Most seeds need soil temperatures of approximately 70° F for strong germination. The best way to control this is by using a heating mat or heating cables. You can also set your seedling pots on top of your water heater or fridge until they have started to sprout.

### 4. Light

With our cloudy spring weather, windowsill light is usually not intense enough on its own to grow healthy seedlings. You'll have much better luck with supplemental light, especially for sun-loving crops. You can buy any kind of grow light, whether spot or tube, to give your plants a boost. Keep the light very close to the seedlings and move it further away as they grow. The more intense the light, the faster the growth. Your plants should be compact, without too much stem between the leaves and the ground. **Legginess** is a sign that your light is probably too far away.

### 5. Watering

Be careful not to overwater, as this increases the likelihood of surface mold and **damping off** diseases. We recommend watering from below and allowing the seedlings to soak up water through the drainage holes on your cells or pots. Allow 10-30 minutes for the water to reach the surface of the soil. This will also help prevent overwatering and minimize the upset of the delicate new seedlings. Check soil moisture once per day with your finger .

### 6. Fertilizer

Remember, fertilizer is not needed until the plants get their first set of **true leaves**. Use a water-soluble plant food with a high middle number (phosphorus) such as a transplant fertilizer or bloom food. Start by diluting it at half the recommended rate for the first few feedings. Use every week or two.

### 7. Air Circulation

Once the seedlings are up and out, they will need good air circulation. A gentle oscillating fan is ideal as it simulates breezes the plant would experience outdoors. This will help your seedlings build sturdier stalks and limit their exposure to diseases.

## RECOMMENDED READING

[The Maritime Northwest Garden Guide](#), by Seattle Tilth. This awesome gardening resource contains a month-by-month planting calendar tailored to the Puget Sound Region, plus an abundance of additional (organic) cultural information. If you're at all serious about vegetable gardening, get this book!

[Food Grown Right, In Your Backyard](#), by Colin McCrate and Brad Halm of Seattle Urban Farm Company. Great introduction to backyard gardening from a local organization that knows their veggies!