SEED STARTING BASICS

1) Why start seeds indoors? Many seeds, including most vegetables and hardy annuals, can be successfully planted directly in your garden bed. However, sowing in flats or containers gives you better control over germination conditions and is recommended for rare or delicate seeds. Some seeds can only be started indoors in our region: for example, tender plants that need a long, hot growing season, such as tomatoes and peppers. Other plants can be started indoors for an earlier start or for succession planting (allowing you to get seedlings up to transplant size while your garden space is occupied with other plants).

2) Time your seed starting! If you start your tomatoes in January, they'll be leggy before they can be transplanted out. Many seed packages have recommendations based on the “last frost date”, which in the Seattle area is generally held to be April 15th. Be careful, though—if you live on a west-facing waterfront property, or a north-facing shaded lot in the foothills, your last frost may be several weeks earlier or later. Bear in mind, too, that heat-lovers such as tomatoes and basil may need to be held indoors longer than you’d originally planned if we have a particularly cold, wet spring.

3) Moisten your medium before sowing the seeds, and keep the seeds evenly moist until the seeds germinate, for example by covering trays with humidity domes.

4) Know any special requirements your seed may have prior to sowing (e.g. chilling, scarifying, presoaking, exposure to light, etc.) Most seed packets will tell you, or you can consult a good seed-starting book (see list at end). For example, sweet peas, garden peas, and beans all germinate better if soaked for 6-24 hours before planting. Many common vegetables and flowers can be planted without special treatment.

5) There are three stages of seedling growth that have somewhat different needs. While seeds are just beginning to sprout, most need constant moisture and warmth, but not much light. During this stage a humidity dome and heat mat make a big difference.

The second stage is when the seedlings have emerged from the soil, but while they are only showing sprouts, or stems plus cotyledons (the odd-shaped, fleshy, first leaf or pair of leaves), before they start growing any adult leaves. During this stage seedlings require bright light and good air circulation, but less moisture and often less warmth than before. Take off the humidity dome and move the seedlings to where the light is best.

Once the seedlings have started developing true leaves, they are miniature, if delicate, adults, with all the needs of adult plants: light, warmth, water, air circulation, and nutrients. At this point, not before, your seedlings will benefit from fertilizer. 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 to ten days.
6) Heat loving plants may need to be transplanted into larger pots before it’s time to plant them out in the garden. Some people start tomatoes in cell packs, transplant them to 4” pots, and then transplant them a third time to gallons, in order to get the largest possible plants to jump-start their tomato season. Try to transplant your seedlings before they get root-bound (roots completely fill the cell or pot and start circling).

7) Use care when transplanting! Be careful not to disturb the roots and handle seedlings by the cotyledons rather than by the stems or true leaves.

8) Use a good transplanting fertilizer at the recommended rate.

9) Before planting any seedlings outdoors, it’s good to harden them off for three days to a week. Hardening off is done by moving seedlings outside for the day and back in at night, to get them acclimated to outdoor temperature swings, sun, and wind.

MATERIALS YOU WILL NEED
1) Medium
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 are planning on keeping the plants in the same container for some time, you can instead 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, we have two recipes at the end of this sheet.

2) Pots, Trays, and Lids (Humidity Domes): All of these should be as clean as possible. If you are reusing materials, it’s a good idea to wash them in a mild soap and bleach solution.

Pots come in a variety of types. Drainage is the most important consideration. Plastic cell-packs are good, but be sure to use ones large enough to accommodate the size plant you are growing. Peat pots and Jiffy peat pellets are useful for plants with delicate root systems—they eliminate transplant shock. Recycled materials such as egg cartons can also be used if well cleaned and provided with drain holes.

Small trays are good when seeds need cold treatment prior to germination. Be sure to use trays with and without drainage for the proper purpose. Large trays without drainage are used under cell-packs to allow you to water and transport the plants more easily.

Lids ensure that moisture levels are kept constant until the seeds have germinated—very important! Purchased plastic lids (humidity domes) fit well over standard seedling trays. You can also make your own for trays with 1X1s and clear or black plastic. For small containers, you can just enclose the pot(s) in a plastic bag. Note: be sure to remove the lids or bags as soon as your seedlings are up and growing.

Kits or windowsill greenhouses are easy to use and make good use of space.
3) **Heat Source**
Most seeds need soil temperatures of approximately 70º F for strong germination. The best way to control this is by using a heating mat or heating cables. If you are not providing a heat source, keep your seedling pots in the warmest possible location, say on top of your water heater, until the seeds have started to sprout.

4) **Light**
With our cloudy spring weather, windowsill light is usually not intense enough to grow sturdy seedlings until late March at the earliest. Supplemental light can be provided by grow lights (spot or tube). Keep the light close to the seedlings—move it as they grow. The more intense the light, the faster the growth.

5) **Fertilizer**
Fertilizer is not needed until the plants get their first set of true leaves. Then use a weak solution of water-soluble high phosphorus (middle number) fertilizer every week to 10 days until transplanting.

6) **Air Circulation**
Once the seedlings are up, they benefit from good air circulation. Also, being exposed to light breezes creates sturdier stalks. You can use a fan on low, or simply shake the tray by hand to simulate the effects.

**Seed Mix Recipes:**

If you would like to mix your own seed starting mix, here are two recipes:

**Territorial Seed Company Mix** (good for seeding flats outside and for larger seeds. Not recommended for fussy or very small seedlings).
- 2 parts garden soil
- 1 part peat moss or coco coir
- Add to each cubic foot of mix:
  - 1 cup dolomite lime
  - 1 pint alfalfa meal or fish meal
  - 1 cup bone meal
  - 1 cup kelp meal

**Cornell Peat-Lite Mix** (This recipe makes a lot but can be cut down. Excellent for all types of seedlings.)
- 8-9 cubic feet peat moss
- 8-9 cubic feet vermiculite
- 5# dolomite lime
- 1# superphosphate
- 12# 5-10-5 fertilizer
Recommended Reading:

*The Maritime Northwest Garden Guide*, by Seattle Tilth. Contains a month-by-month planting calendar tailored to the Puget Sound region, plus an abundance of additional (organic) cultural information. If you’re serious about vegetable gardening, get this book!