



# Seed Starting 101

Growing your own vegetables and flowers is fun and easy. Flowers are beautiful and are a great way to cheer up your outdoor living space, while vegetables provide you and your family with healthy and nutritious food. Growing your own vegetables gives you the peace of mind knowing where your food came from and that your tomatoes, carrots and spinach were grown without the use of pesticides and preservatives!

## Equipment – Get set up with all the essentials

### Cells

Plugs  
Cells divided vs. open, fibre vs. plastic, peat pots

### Trays

Holes vs. no holes

### Water

Spray bottles – must be set to mist  
Watering cans – use only for older seedlings. Look for small holes for gentle watering

### Light

Very bright window may suffice, depending on what you're growing  
Seedlings will lean towards light – Rotate!  
Check for spindly seedlings and adjust light source  
Grow lights and lighting fixtures

### Optional Equipment

Peat pellets  
Labels: Plastic, wood, metal  
Domes: low vs. high and high humidity vs. rotting  
Dibble sticks  
Soil Blockers

## Soils – The start of every seed...

Growing mediums are essential to starting seeds. All seeds need a good sterile soil to start sprouting. Typically we recommend Pro-Mix potting soil or an organic potting soil such as Jolly Farmer Seed Starting Soil. Along with a soil some flower and vegetable varieties prefer different soil conditions and additives. Here are the common ingredients that typically get mixed into growing mediums.

**Peat:** Decomposed aquatic plants, not usually used for seedlings. Can be acidic. Not easy for water to penetrate as it tends to retain water. Peat has better drainage and aeration when mixed with other materials.

**Sphagnum Peat Moss:** light weight and sterile. Good absorbency as it absorbs 10-20 times its weight in water. Is shredded for seedling use. Acidic. Better when mixed with other materials.

**Vermiculite:** Light and sterile. Holds lots of water for long periods of time. Contains magnesium and potassium, which helps with root growth. Typically comes mixed in with various seed starting potting mixes (such as Pro-Mix and Shultz).

**Perlite:** Made of volcanic ash. Light and sterile. Does not absorb water, holds on surface.

**Sand:** Great for rooting. Not sterile and does not contain organic matter. Good for drainage.

**Soil:** Poor drainage and aeration. Not sterilized.

**Mixture:** Sterile potting mix such as Pro-Mix. Sphagnum moss, vermiculite and perlite.

A preferred soil for seeding must be light and sterile. Mixes typically work best and good drainage is important. The mix must be fairly fine and free of sticks and large pieces. When preparing the soil for seeding make sure it's evenly mixed and moist, but not wet.



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## The Importance of Sterility, Drainage and Damping-off

The growing conditions will dictate how strong of a seedling you get. It's important to keep a constant watch on the climate and conditions the seeds are being started in. A sterile, moist and warm environment are the best. In order to attain the right conditions follow these key tips:

- Make sure the pot or cell packs have drainage (holes) and good air circulation.
- When watering don't let the water sit in the tray. If you have over watered be sure to remove as much water as possible from the holding tray under the cells. Over watering and stagnate water can lead to an infestation of fungus gnats.
- If pots are reused, make sure to sterilize them with a water and bleach mix prior to planting.
- Do not add soil or organic material, because of fungus present in the soil
- When there is a combination of a lack of sterility and high humidity mold tends to form and damping off occurs. Damping Off caused by root mold/fungus typically leads to the seedling rotting at the base of the stem
- Vermiculite and finely milled sphagnum peat are suggested over top the seeds (that don't mind cover). These will be completely sterile coverings that resist damping off.
- Cinnamon is naturally antifungal and is fine enough not to block light making it a great substance to put over the surface of the soil for seeds that do not like cover. This can be applied at the first sign of fungus or right from the first planting.

## Seeds

### Special Treatments

Many seeds need to be prepared prior to planting to ensure they have good germination. Before starting your seeds be sure to read all packages and plan ahead in case a particular variety needs to be prepared a few days or weeks in advance of planting. Here are a few terms to be familiar with:

**Soaking:** This can sometimes be a few days ahead of when you expect to plant. Soaking the seeds softens the seed coat and leeches out chemicals. Generally you soak for 24 hours. Sow seeds immediately after soaking. Larger hard shelled seeds have a hard time absorbing water. Some common seeds that you need to soak are sweet peas, anemone, morning glory, parsley and lupines.

**Scarification:** making a nick or lesions on the seed. Not too deeply as you don't want to do any damage. Mallow, sweet peas, lupines, morning glory seeds all need to be nicked.

**Stratification:** a moist-cold treatment. Mix seeds with 2-3 times their volume of a growing medium that has been moistened (Pro-Mix) and place in the fridge. Lavender, phlox and columbine commonly need to be treated this way.

\*never stratify seeds while they are still in the package.

Not all seeds will require a special treatment prior to being started. Be sure to read all package directions to find out what each specific variety you are planting will need. Some seeds resent transplanting and should be sown either directly into the garden or into peat pots that can be planted into the ground. Examples of seeds that should be planted directly into the ground include root vegetables (ie. Carrots), parsley, cilantro, squash, spinach and radish.

### Environmental Conditions

It's always best to place the seed starting tray in an area where the temperature is between 70-75. A gentle bottom heat is recommended either from a heating pad, heater or by placing the trays on top of the fridge. Moisture and humidity must be kept up, but soaked soil can cause rotting and damping off.

### Heirloom Seeds

Growing vegetables from heirloom varieties have become quite popular. Heirloom seeds are not genetically modified and have naturally adapted to the climate, diseases and pests overtime. These seeds are open pollinators, have existed since before the year 1951 and grow "true to type". Their seeds can be collected and used in the following season.



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## Sowing and Growing Seeds – Start to Finish

Always read the directions of each package of seed you are looking to plant. You want to find out germination times, if the seed should be started early or planted right into the ground, the space needed to grow the variety you want and certain needs of the seed – how much light (sunny, partial sun, shady), drainage, etc.

When starting the seed indoors using cell packs and flats start off by getting your soil moist (not soaked). Fill the cells/pots up slightly overflowing with soil and tap tray down gently to ensure that there are no air pockets, and sweep off the excess soil. Gauging on the size of the seed place seed in the center or sprinkle in each individual cell. For larger seeds, make an indentation in the center and place seed in that and for smaller seeds that are harder to control gently tap in the seeds while trying to keep in mind the recommended spacing (once seedlings present you can take out seedlings that are too close to each other). When finished cover the seeds with soil (if they need covering) and gently mist with a spray bottle. Place clear plastic dome on top and sit tray on a heated mat or in an area it will get adequate heat.

## After germination treatment

After the seeds have germinated and the seeds have sprouted into seedlings they require 3 things:

**Warmth:** Most seedlings require cooler daytime temperatures and even cooler night time temperatures than what they had while they were germinating. For example, if they were germinated at 26 degrees then the daytime temp should be 21 and the night time temp should be 16. This ensures that the seedlings don't stretch or become weak. There are a few common exceptions to this rule – tomatoes, cucumbers and peppers like to grow in warmer environments

**Light:** The most important time for sufficient light is right after they sprout. Lights should be about 6 inches away from the tops of the seedlings. Before germination lights can be on 24 a day but after germination you want to gradually reduce the amount of light they receive over a 3 week period down to 12 hours.

**Fertilizer:** Once seedlings have been up for a week they need a weak solution of high phosphorous water soluble fertilizer (ex. 5-20-10). They can be fertilized once every week or two. Use bottom watering or a mister/watering can to apply fertilizer.

## Transplanting 1 – From Cells to Pots

Once the seedlings have out grown the cells they are in, plant them into individual pots to mature further until it is time to plant them outside.

**Pots:** Be sure to choose the appropriate size pot to plant the matured seedlings into. Faster growing and larger plants may outgrow their pots by the time they are planted outside. Choose the type of pot you want to use, plastic are reusable but a peat pot will decompose and can be planted directly into the ground. Plant roots should completely fill the pot by the time it's transplanted.

**Techniques:** Always be patient and gentle when transplanting. Choose a shady location and don't allow the plants to dry out. After filling all of the new pots with soil, wiggle a hole in the center of them that is big enough to contain the roots of the seedling without squishing them. Always start with the strongest plant in the bunch. Gentle push from the bottom of the cell pack up to pop the seedling, root system and soil out of the cell. You can gently pull apart the roots before you guide the plant into the hole of the new pot. Gently press the soil around it and water well. Move to a location with indirect sunlight for a day or two. Some plants can get transplant shock.

**After transplanting:** Allow for one week recovery prior to starting to fertilize again. Pinch back the lead shoot of plants that have gotten too "leggy" (exceptions tomatoes and leaf vegetables).



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## Transplanting 2 – Into the Ground

Eventually comes the time when you will be able to put the little plants into the ground to grow big and tall, flower, and produce delicious food to put on your table. To prepare the sensitive seedlings to handle the conditions follow these guidelines to a successful planting.

**Hardening Off:** When the temperatures outside are right for each variety you can begin to harden off the plants. This process entails placing the plants outside (keeping out of direct sunlight) during the day and bringing them back inside for cooler overnights. Gradually increase the light levels over the first week, and this process will acclimatize them to sunlight and their environment outside.

**Temperature:** Cold weather crops can be planted outside much earlier than others (onions, cabbages, broccoli, lettuce, peas). Heat loving plants (Squash, tomatoes, peppers, eggplant and basil) need to be held off until or after the last frost. Generally, most annuals can be planted by the end of May. Always consult packages with each variety, as they are all different. When frost warnings are in effect be sure to cover your crops with floating row cover.

## Transplanting outside

Always amend soil ahead of time with lime, compost and topsoil. Plan your garden out according to height and mature size – for flower gardens you need to make sure all the blooms get seen and for vegetable gardens plan for the space each plant will need especially if it grows outward on a vine (squash). Prepare the holes making sure it is wider and deeper than the pot the plant is being taken out of, mixing bonemeal and compost into the hole is a good idea as well. If using plastic pots gently remove the plant from the pot by carefully holding the stem and squishing the pot slightly with the other hand. Peat pots can be planted directly into the ground prior to placing them in the ground tear off or cut excess at the top and at the bottom of the pot as those don't decompose as quickly. Place plant in the hole and fill in with surrounding soil, hold onto plant to ensure the soil remains level to the original level in the pot. Water well and provide shade when necessary

## Continuing Care

Once plants are fully established in the ground be sure to keep up on regular watering and fertilizing. Check for insects and disease and treat when necessary. Weed on a regular basis with a weeder or by hand picking.

## Seedlings that resent transplanting

Beets  
Borage  
California Poppy  
Caraway  
Carrot  
Chervil  
Coriander  
Corn  
Cucumber/squash  
Dill  
Fennel  
Flax  
Lupine  
Mustard, Rutabaga, Turnip

Nasturtium  
Nigella  
Parsley  
Parsnip  
Pea  
Poppy  
Radish  
Rocket  
Sanvitalia  
Spinach  
Swiss chard  
Tree Mallow

\*Root vegetables in general dislike transplanting



# Seed Starting 101

## Direct seeding and transplanting times for your garden

April 26<sup>th</sup>

Vegetables:

- Peas (seed)
- Spinach (seed)

May 4<sup>th</sup>

Vegetables:

- Cabbage
- Collards
- Kale
- Lettuce
- Onion sets
- Potatoes
- Radishes

Flowers:

- Bachelor's Button (seed)
- Pansies
- Sweet peas (seed)
- Gladiolus

May 18<sup>th</sup>

Vegetables:

- Beets
- Broccoli
- Cauliflower
- Parsley
- Swiss Chard

June 1<sup>st</sup>

Vegetables:

- Corn (seed)
- Carrots (seed)

Flowers:

- Alyssum
- Cleome
- Cosmos
- Dusty miller
- Sunflowers (seed)

June 7<sup>th</sup>

Vegetables:

- Cucumbers
- Tomatoes
- Basil
- Beans (seed)

Flowers:

- Ageratum
- Four-o'clocks
- Marigolds
- Nasturtium
- Petunias
- Portulaca
- Salvia
- Zinnia

June 15<sup>th</sup>

Vegetables:

- Eggplant
- Melons
- Peppers
- Pumpkin
- Squash

Flowers:

- Celosia
- Coleus
- Impatiens
- Vinca (trailing)

June 29<sup>th</sup>

Vegetables:

- Okra

\* Please note this is a general guideline as to when you can transplant or seed directly outside into your garden. Each growing season is different and requires planning and weather watching to make sure temperatures are not too cold or overly hot - adjustments in seasonal weather conditions means you need to make adjustments in your garden.