

# Intro to Starting Seeds

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## **Before it is time to sow seeds try to check on these considerations:**

- Do any of these seeds need stratification (cold treatment), if so make sure to allow time for that (often 90+ days). Seeds that need stratification should be stored in damp material (potting soil, paper, sand) in a closed container in the refrigerator or root cellar (Not the freezer). Sowing outdoors in fall, late winter, early spring is also a option.
- Where will the seedlings live before being moved to their final home? Is a proper space ready?
- Where will the seedlings go after danger of frost? How many of each plant is needed? It is better to have a small number of very healthy seedling then a large number of weak or stunted seedlings.
- What do you want to grow? What will you actually eat / use / enjoy the most? What is needed by other living things on the land?

## **Seed Storage:**

- Most seeds should be stored cool and dry, avoiding large temperature swings if possible.
- Very dry seeds can be frozen for long term storage, use silica gel to ensure dryness.
- Some seeds, especially large seeds of woody plants (acorns, chestnuts etc) should be stored cool and damp.

## **When it is time to sow seeds you will need:**

- Healthy viable seeds, the larger and fatter the better.
- Something for them to grow in (see potting soil recipe below), ideally this mixture should hold water well, let air move well and have some soil biology present in it.
- Something to contain the potting mix, larger containers have a larger margin of error when it comes to watering and re-potting.
- A light source: south facing windows, tube florescent fixture with chains to adjust height or specialized grow lights.
- Water, ideally clean rain or snow melt, well water is fine if its not too "hard", city water if often less then ideal, but gets better if left out and stirred to help chlorine/choramine off-gas. A tiny bit of humic acid / compost leachate mixed with city water / hard water will likely improve it by binding to undesirable chemicals.
- Clear plastic domes or bags to keep soil surface humid and warm for germination is often helpful, but optional.
- Seed inoculants are often a small investment that helps insure good biology is present from the start of the plant's life. Optional and less important if you have good compost in your potting mix. I use Mycogrow from fungi.com

## **Planting tips:**

- typical planting depth is twice the diameter of the seed, when in doubt do less depth. Tiny or dust like seed should sown on the surface and lightly pressed down to improve contact with soil. Some seeds need light to germinate, these should be surface sown, if the seed appears to be adapted to wind distribution (like a dandelion) these seeds often germinate better with light.
- Most annual seeds germinate well at a warm room temperature 65f-75f.
- Keeping your potting mix or soil damp until germination is critical.
- Some seeds benefit from scarification (roughing up the seed coat, typically with sandpaper), soaking in cold water or soaking in hot water. These tricks often dramatically speed up germination.

### **Tips for Tricky Seeds:**

- For unfamiliar species of plant, research germination requirements by googling "Species botanical name" germination. IE "Pisum sativum" germination.
- GA3 is a plant hormone, cheaply available on eBay or from JL Hudson, soaking seeds in GA3 / water solution for 12-24 hrs often helps seeds to germinate more readily, especially useful for deeply dormant seeds.
- Potassium nitrate (KNO<sub>3</sub>) has a similar effect.
- Some seeds only develop deep dormancy upon drying, collecting fresh seed and storing it cool and damp often yields excellent results.

### **Once seedlings appear:**

- The first thing out of the soil is often the cotyledon or seed leaves, shortly after true leaves usually appear.
- Once the cotyledons appear, its time to remove the seedling from humidity domes or plastic bags, extra heat is often unnecessary after this point as well, but indoor seedling shouldn't go below 55 as a general rule.
- Now is the time to start encouraging strong, stocky stems, air movement (fan or open window if the weather permits), brushing or touching seedlings and keeping lights bright all encourage good growth.
- Moisture control is important, you never want to let your soil dry out completely, but you also want to avoid soggy soil (which allow pathogens to thrive and take over). Once seedlings are up it is OK to let the surface of the soil dry up a bit between waterings.

### **When it is time to plant out seedlings:**

- Do not plant out seedlings without slowly introducing them to out door conditions, start with 1-2 hrs of sheltered outdoor time per day (away from direct sun/wind), over a period of 5-8 days work up to leaving seedling out 24 hrs a day, then plant out.
- When planting out, try to do it in the morning or evening or when the sky is cloudy.
- Watering the transplant hole right before and after putting the seedling in reduces transplant shock and will help your plant get growing quickly. Mulching is a good idea as well.

### **Aaron's potting mix recipe:**

This is by no means perfect, but it works well for me, there is a wide margin of error here, so feel free to experiment.

5 parts Peat moss or Coco Coir

5 parts good finished compost, this compost should never have "gone anaerobic" (smelling bad is a sign of anaerobic activity) and ideally should have a decent amount fungi growing in it (having woody material in the compost feed stock nearly ensures this), if growing perennials, especially woody plants a fungal dominated compost is ideal.

1-2 parts Perlite, helps keep soil aerated and reduces compaction, you could get away with less.

Water, add water slowing while gently mixing, when the mix has enough water you should be able to squeeze a few drops of water out of a handful, no more. You want damp and fluffy, not soaking wet.

Optional:

Adding micro nutrients might be a good idea, although these should be mostly present in good compost. The safest way to do this is by adding 1/2-1 parts stone dust. All concentrated micro-nutrients (IE salt forms) should be buffered with a carbon source (humic acid, compost leachate, molasses or even white sugar) and then added to the water you are using to hydrate the potting mix. As a example this year i added 1/4-1/2 tsp borax to a 10 gallon batch of potting soil, this was buffered with ~1/2 tsp molasses and ~1/2 tsp yogurt (to give it some bacteria to work on it).

### **Seed sources:**

**Edgewood nursery** – My business, I usually have around 30 types of seed for sale, mostly unusual and/or edible perennials. - <https://www.edgewood-nursery.com>

**FEDCO Seeds** - My favorite place to buy seeds, also a company I grow seeds for. I like them because they are a co-op and treat their workers well, their prices are excellent and their selection is good and is tailored to our growing climate. <http://www.fedcoseeds.com/>–

**Johnny's Selected Seeds** – Another Maine based co-op seed company! A larger company with more resources than FEDCO, which means more selection, more research happening and sometimes better storage (leading to quicker and/or better germination). Much more expensive than fedco. -

<http://www.johnnyseeds.com>

**Horizon Herbs** – A great place to go for medicinal herb and unusual perennial seeds (I would avoid buying plants from here). I have always had good luck with their seeds, however when the catalog says "fully cold hardy" or something like that, they are referring to their site not in general. [www.horizonherbs.com](http://www.horizonherbs.com)

**JL Hudson, Seedsman** – When you really want to get off the beaten path - [www.jlhudsonseeds.net/](http://www.jlhudsonseeds.net/)

**Burnt Ridge Nursery** – Good prices / selection for nut tree seeds - [www.burntridgenursery.com/](http://www.burntridgenursery.com/)

**F.W. Schumacher** – large selection of woody plant seeds, packet sizes available. <https://www.treeshrubseeds.com>

**Ebay** – source of last resort, can't find it anywhere? Just need this one kind of seed? - [www.ebay.com](http://www.ebay.com)

March 1	Start indoors: celery, celeriac (3/1 to 3/15), onions and leeks (2/20 to 3/15), kale
March 14	Start indoors: leaf and head lettuce
March 21	Start indoors: peppers
April 1	Start indoors: broccoli, Brussels sprouts, cabbage, cauliflower, eggplant
April 14	Start indoors: tomatoes Start outdoors: beets, carrots, leaf and head lettuce, peas, parsnips (4/15 to 5/15), radishes, shallots (4/15 to 5/30), spinach, turnips, bunching onions for summer harvest (4/15 to 5/1), onions from seeds or sets Transplant out: leaf and head lettuce, onion seedlings
May 1	Start indoors: melons, squashes, cucumbers Start outdoors: beets, carrots, leaf and head lettuce, peas, radishes, spinach, Swiss chard (5/1 to 5/31), turnips Transplant out: broccoli, Brussels sprouts, cabbage, cauliflower (5/1 to 5/15 when 4 to 5 weeks old), leeks (5/1 to 5/15)
May 14	Start indoors: broccoli, Brussels sprouts, cabbage, cauliflower for fall crop Start outdoors: beets, leaf and head lettuce, peas, radishes, spinach, turnip
June 1	Start outdoors: bush green beans, pole beans, beets, Chinese cabbage (5/30 to 7/30), carrots, corn, leaf and head lettuce, peas, potatoes, radishes, spinach, turnip Transplant out: celery and celeriac (6/1 to 6/15), tomatoes Transplant or direct seed out: melons, squashes, cucumbers
June 14	Start outdoors: beets, corn, leaf and head lettuce, peas, radishes, rutabaga, spinach, turnip Transplant out: 4/1 sowing of eggplant, 5/15 sowing of broccoli, Brussels sprouts, cabbage, cauliflower
June 21	Start outdoors: bush green beans, carrots
July 1	Start outdoors: beets, corn (short season varieties), kale, leaf and head lettuce, peas, radishes, spinach, turnip
July 14	Start outdoors: bush green beans, beets, carrots, leaf and head lettuce, peas, radishes, spinach, turnip; hardy bunching onions for fall and spring harvest (7/15 to 8/15)
August 1	Start outdoors: beets, leaf and head lettuce, peas, radishes, spinach, turnip
August 14	Start outdoors: leaf and head lettuce, radishes, spinach, turnip
September 1	Start outdoors: leaf lettuce, radishes, shallots for spring green onions, spinach (sow now for fall crop and now until ground freezes for spring crop, well mulched over winter)
October 1	Start outdoors: garlic Calendar from: <a href="http://www.mofga.org/Publications/ArticlesforReprinting/OrderSeeds/tabid/1056/Default.aspx">http://www.mofga.org/Publications/ArticlesforReprinting/OrderSeeds/tabid/1056/Default.aspx</a>

## VEGETABLE PLANTING GUIDE

**VEGETABLE CHART**

Vegetable	Catalog # range	avg. sds/oz	sds/100'	Pkt plants	distance apart	thin to	row spacing	seed depth	min soil temp °F	ideal soil temp	hardiness	planting dates
Artichoke	3608	560	T	10 pl	3'	No	2'	1/2"	60	65-85	MH	tp late
Arugula	3020-29	15000	3g	60'	1"	4"	18"	1/4"	50	65-85	MH	May 1/Aug 1
Asian Greens, assorted	3200-83	5000-15000	varies					1/4"	50	65-85	MH	early May
Basil	4414-4470	17000	5g	10-80'	1/2"	4"	18"	1/4"	65	70-85	VT	June 1
Bean, Bush, Dry	200-77,326-90	90	8 oz	25'	3-4"	No	2-3'	1"	60	60-80	T	late May
Bean, Fava	298-99	17	1#	12'	3-4"	No	2-3'	1"	40	40-75	H	ASAP
Bean, Lima	323-325	60	1#	40-60'	4-6"	No	3'	1"	60	70-85	VT	late May
Bean, Pole	279-97, 318, 322, 325, 371	65	6 oz	10 pl/oz	6/pole	3/pole	3-4'	1"	60	60-80	T	late May
Bean, Soy	480-99	80	5 oz	10'	3"	No	3'	1"	60	70-90	T	June 1
Beet	2100-99	2200	5/8 oz	20'	1"	2-4"	12-18"	1/2"	40	60-85	H	Apr-July
Broccoli	3300-29	5000-8000	5g	.5g=10'	1"	24-30"	30"	1/4"	50	65-85	MH	tp May/June
Brussels Sprouts	3330-49	5000	5g	.5g=10'	1"	24-30"	24-30"	1/4"	50	65-85	H	tp May/June
Cabbage	3350-99	6000-7000	5g	.5g=10'	1"	24-30"	24-30"	1/4"	40	55-95	MH	tp May/June
Carrot	2000-99	18000	10g	1/8oz=35'	1/4"-1/2"	1"	16-24"	1/2"	40	60-85	H	Apr-July
Cauliflower	3400-40	6000-7000	4g	.5g=12'	1"	30"	30-36"	1/4"	40	55-80	MH	tp May/June
Celery/Celeryiac	3610-49	75000	T	500	8"	No	2-3'	1/8"	40	59-70*	T	tp June 1
Chard	3030-43	800-2000	1 1/2 oz	5-13'	1"	3-6"	18-24"	1/2"	40	50-85	H	ASAP
Chicory	3047-49	16000	T	300 pl	1"	No	2'	1/8"	50	60-85	H	tp late June
Chinese Cabbage	3224-25	9500	1/4 oz	25'	1/2"	12-18"	24-30"	1/4"	50	70-95	MH	late May or tp
Corn, OP	516, 544, 636, 652, 680-99	100	4 oz	50'	3"	1"	3'	1"	50	60-95	T	late May
Corn, hybrid	500-699	155	4 oz	50'	3"	1"	3'	1"	50	60-95	T	late May
Cress	3050-58	9000	3g	50-70'	1/2"	1-2"	18"	1/4"	50	65-85	MH	May 1
Cucumber	1200-1399	1000	1/2 oz	11'	2"	4"	3-4'	1/2"	60	65-95	VT	June 1 or tp
Eggplant	3650-91	7000	T	40 pl	20-30"	No	30-36"	1/4"	60	75-90*	VT	tp early June
Endive	3060-92	18000	5g	40'	1"	8"	18-24"	1/4"	50	60-85	H	Apr-July
Gourds, large	1960-99	120-280	T	20 pl	6/hill	2-3/hill	6'	1/2"	60	70-90	T	tp early June
Gourds, small	1900-59	500	1/5 oz	10 hills	6/hill	3/hill	4-6'	1/2"	60	70-90	T	late May
Kale/Collards	3441-69	5000-8000	5g	1g=20'	1"	12"	2'	1/4"	50	65-85	VH	ASAP-July
Kohlrabi	3470-79	6000	4g	1g=25'	1"	24"	24"	1/4"	50	65-85	MH	tp May/June
Leek	2400-29	9000	T	1g=320 pl	8"	No	2'	1/2"	50	60-70	MH	tp May 1
Lettuce	2700-2988	25000	4g	1g=25'	1/3"	1"	12-18"	1/8"	35	40-80	H	ASAP-Aug
Mâche	3100-19	17000	1/4 oz	25'	1/2"	2"	18"	1/4"	48	50-68	VH	ASAP-Aug
Melon	900-999	960	T	12-20 hills	3/pot	2/hill	5'	1/2"	60	75-95	VT	tp early June
Mustard	3226-59	15600	1/8 oz	40'	1"	4-6"	2'	1/4"	50	65-85	MH	Apr-Aug
Okra	3695-99	420	T	30 pl	12"	No	2-3'	1/4"	60	70-90	VT	tp early June
Onion/shallots	2440-99	7000	T	450 pl	4"	No	12-18"	1/2"	50	60-70	MH	tp May 1
Pac Choy	3260-73	12500	1/4 oz	14-25'	1/2"	6-12"	2'	1/4"	50	70-95	MH	May or tp
Parsley	3155-79	14000	1/4 oz	25'	1/4"	1"	12-18"	1/4"	40	50-80	VH	Apr-Aug
Parsnip	2305-10	7000	1/2 oz	25'	1/2"	2-3"	12-18"	1/2"	46	55-77	VH	Apr-July
Pea	700-899	125	8 oz	25'	1 1/2"	No	3-5'	3/4"	40	50-75	plants H	ASAP
Pea for fall crop	700-899	125	8 oz	25'	1 1/2"	No	3-5'	3/4"	40	50-75	blossoms, pods T	July
Pepper	3700-3899	2800-5600	T	10-50 pl	12-18"	No	2-3'	1/4"	60	68-95	VT	tp early June
Pumpkin	1700-99	100-280	1/2-1oz	3-8 hills	5/hill	3/hill	6'	1"	60	70-90	T	late May
Radicchio	3186-91	19000	1/2 oz	5-30'	1"	8-10"	18"	1/8"	50	60-85	H	late June
Radish	2200-99	2500	1 oz	12'	1/2"	2"	18"	1/2"	40	55-85	H	Apr-Aug
Rutabaga/Turnip	2350-99	8000-14000	1/3 oz	40'	1/2"	3-6"	18"	1/4"	40	60-95	H	Apr-July
Salsify/Scorzenera	2318-22	2000	5/8 oz	20'	1"	2"	18"	1/2"	50	65-85	H	Apr-Jun
Shiso	3282-83	14000	T	150 pl	8-12"	No	18-24"	1/4"	65	68-75	VT	tp early June
Spinach	2500-88	1400-2600	1/2 oz	40'	1"	2"	12-18"	1/2"	35	45-65	VH	ASAP
Spinach, fall crop	2500-88	1400-2600	1/2 oz	40'	1"	2"	12-18"	1/2"	35	45-65	VH	Aug
Squash, patty pan	1577-90	200-320	5/8 oz	5-8 hills	5/hill	2-3/hill	4'	1"	60	70-90	T	late May or tp
Squash, winter	1600-99	120-450	1/2-2 oz	3-15 hills	5/hill	3/hill	4-6'	1"	60	70-90	T	late May or tp
Squash, summer	1400-1599	160-320	1/2 oz	5-8 hills	5/hill	2-3/hill	4'	1"	60	70-90	T	late May or tp
Tomato	4015-4299	9000	T	6-125 pl	3'	No	3'	1/4"	50	60-85	T	tp June 1-10
Watermelon	1000-1099	670	T	7-14 hills	3/pot	2/hill	5'	1/2"	60	75-95	VT	tp early June
Zucchini	1400-60	180	1 oz	4-6 hills	5/hill	2-3/hill	4'	1"	60	70-90	T	late May or tp

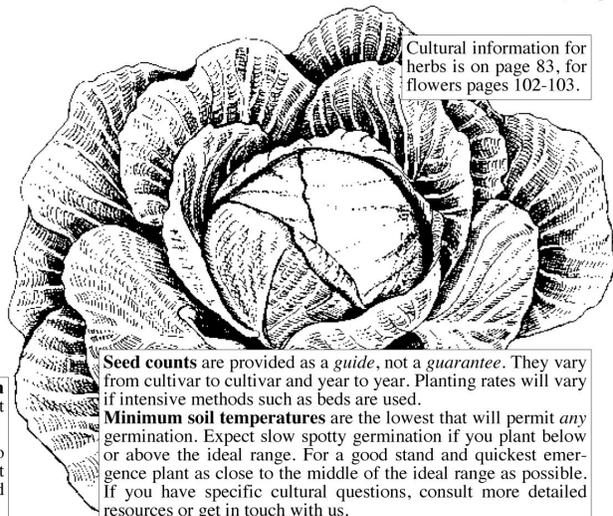
**Key:** Pkt plants=how many row feet or hills our smallest packet will plant  
 T=transplanted only, in our climate.  
 tp=transplant pl=plants g=grams, 28.4g=1oz. No=not necessary to thin  
 \*Celery and some varieties of eggplant require fluctuating day and night temperatures for good germination.

**Hardiness rating:**  
 VT=very tender: will not survive frost, can be damaged by temperatures under 40°  
 T=tender: will not survive frost  
 MH=moderately hardy: survives light frosts  
 H=hardy: survives frost generally to the low twenties  
 VH=very hardy: will overwinter if protected

**Approximate planting date:**  
 ASAP=as soon as ground can be worked, does not thrive in heat  
 Approximate planting dates are for our Central Maine climate.  
 Please make appropriate adjustments for your climate, using hardiness as a guide.

A few seeds with unusually thick or hard coatings may benefit from **scarification** just before sowing. This is accomplished by nicking them with a knife, a pinpoint or lightly scratching them with sandpaper.

Some seeds need to be **stratified** before sowing. This tricks the seed into thinking it has gone through winter followed by the gradual warm-up of spring. It is accomplished by first moistening and then chilling the seed for a specified period of time.



Cultural information for herbs is on page 83, for flowers pages 102-103.

**Seed counts** are provided as a *guide*, not a *guarantee*. They vary from cultivar to cultivar and year to year. Planting rates will vary if intensive methods such as beds are used.  
**Minimum soil temperatures** are the lowest that will permit *any* germination. Expect slow spotty germination if you plant below or above the ideal range. For a good stand and quickest emergence plant as close to the middle of the ideal range as possible. If you have specific cultural questions, consult more detailed resources or get in touch with us.