SEED STARTING *Success*

BY KRISTEN RANEY

Welcome!

Does seed starting seem overwhelming and complicated?

Obviously the answer is yes, or you wouldn't be reading this booklet! Hi, my name is Kristen and I'm the gardener and writer behind the popular zone 3 gardening blog, Shifting Roots. Growing up on a farm, I was forced into learning to garden at a young age. And I actually kind of hated it. (What?!?!)

But as I got older, it began to grow on me. Once I was on my own and in my first house, I was so glad that my parents had taught me to garden and that I generally knew what I was doing. When I ran into problems, help was just a phone call away to my parents.

Soon my friends were asking me to help them with their yards and gardens, and I realized that not everyone my age had parents who taught them to garden. In fact, almost none of my friends did. So when I started to write about gardening, I wanted to be that gardening-friend-over-the-internet who helped you learned to garden, but didn't make it complicated.

In my blog, I help beginner gardeners learn to garden in an accessible way, and I wanted to make an easy to follow guide to break down the complicated topic of seed starting. So I created this booklet to be just that--a series of lessons on all the aspects of seed starting that will get your feet wet and get you growing with confidence.

I personally garden in zone 3 in Saskatoon, SK. While some of my advice may not be perfect for every single growing condition and zone, I've tried to write it in a such a way, that no matter where you live, you should be able to apply what you've learned to your situation.

And if you ever run into trouble, the Growing Roots Gardening Community is just a short click away. We have gardeners of all levels from all over the world who would be willing to lend a hand on any zone-specific questions you have.

Happy gardening!

Kristen

Before You Start

For most gardeners, seed starting will begin around 10 weeks before their final frost date. This is the date that is historically the last average day you'll have freezing temperatures. So before you get soil or seeds or any of that, you'll need to know what your last frost date is, so you can figure out your seed starting time line. More on that in the next two pages!

If you're planning on seed starting perennials, you'll also need to know your growing zone to make sure you pick seeds that will work in your area. If you are planting vegetables and cut flowers, your growing zone does not really make a difference--the lenght of your season between frosts does. Your growing zone matters when selecting perennials, which we are not covering in this ebook.

Finally, you'll need to find a space in your house that's suitable for seed starting. If you're starting with a window, you'll need a south facing one that kids and pets don't have access too (or can be trusted not to get in to).

If you're using grow lights, you'll need a space that's reasonably warm, you'll remember to go to daily, is out of the way of kids and pets, and has enough outlets to safely power your equipment.

Seed Starting Supply Checklist

Here's the basics of what you'll need to get started seed starting. In the following pages, I'll go over each item in more detail.

- CONTAINERS AND/OR TRAYS
- SOIL
- GARDEN PEN
- TAGS
- GROW LIGHTS
- WINDOW
- GARDEN PLANNER
- CALENDAR
- SEEDS
- SOIL BLOCKERS (IF USING)
- PERLITE
- VERMICULITE
- SEED STARTING FERTILIZER
- CLEAR TRAYS FOR GERMINATING

How to Access the Videos

Sometimes it's just easier to see seed starting in action, instead of reading about it. That's why this ebook includes videos on my seed starting setup, how to start seeds, and what's all involved.

These links are to private videos just for students of Seed Starting Success. Please do not share them with anyone, unless they have also purchased a copy of Seed Starting Success.

You will be emailed a link to the private videos between the dates of April 4th-20th, as they are made. This is a brand new product, so I need to make the videos as I'm "doing the thing" at the proper time with my own seedlings. Once all videos are finished, they will live in a special course, which you will also receive access to. Thank you for your understanding.

Our Zoom Chat will be Monday, April 11th at 7PM Saskatchewan Time. Here is your link:

https://us02web.zoom.us/j/81532255143

You'll also receive a link to the replay, 24-48 hours after the chat.

Where do I Begin?

THE BASICS & TERMS YOU NEED TO KNOW

Growing Zones & Frost Dates

What is a Growing Zone?

A growing zone (or hardiness zone) is a geographically-defined zone in which a specific category of plant life is capable of growing, as defined by temperature hardiness, or ability to withstand the minimum temperatures of the zone.

If you want to find your zone, google your city name plus the term "growing zone." However, as I previously stated, you won't need to know your growing zone for seed starting as it's more important to know if you're planning a perennial garden. I include it in this ebook, only because it's a term that's thrown around a lot in the gardening world, and it's helpful to know what yours is.

What is a Frost Date?

A frost date is defined as the day in which there is a 50% chance of being frost free. Let that sink in a moment. That’s a lot of room for error. Frost dates are not set in stone. They are guidelines made by scientists and horticulturists using 30 years of data.

They can not account for a freak year. Where I live, it has been known to get to +30 celsius at the beginning of May, and occasionally snow in June. There is no way to predict either of those scenarios. However, I can give you my best practices to succeed.

Find Your Frost Date by Postal Code for Best Results

You'll get much more accurate dates. I like this one because it also lists the number of days in your growing season, which can help you determine what varieties of plants to choose.

https://www.almanac.com/gardening/frostdates

Talk to Other Gardeners in Your Immediate Area

What is the planting date they swear by? Ask if they have they ever planted a garden earlier or later and what the results were. If you don't know anyone, come on over to the Growing Roots Gardening Community and see if there's anyone in our group close to you.

For example, where I live, the last Spring frost date is listed as June 1-10. But in my family, we always planted on the May Long Weekend (sometime from May 16-21) and then waited an extra week or two to plant tomatoes and other plants that needed all risk of frost to be past. Now, I often start planting on Mother's Day Weekend--but I only plant my direct-sown seeds. My garden is small enough that if a surprise late frost comes up that year, I can cover everything with old sheets. If emerging plants end up dying, there's still time to re-seed.

Watch the Weather

While you obviously can't predict what the weather is going to do, you can probably make some educated guesses.

Check the weather every day and pay special attention to how cold it gets every night. If it's consistently hovering around freezing or 3 degrees higher, it's probably too early to put in a garden. However, if that average is 10 degrees above freezing or higher, you might consider it. For example: I usually plant my garden sometime around the third weekend in May. However, one year we had almost a week of unseasonably high temperatures that warmed up our soil 2 weeks earlier than usual. I looked at the 2 week forecast and didn't see a huge expected dive, so I took my chances and planted everything early except for squash, peppers, and tomatoes. There ended up being three cold days, but no frost, and my garden turned out great that year.

I wouldn't plant your garden early after one day of unseasonably warm weather, but I took one week as a sign.

Also, if it's the third weekend in May (my usual planting day) and the weather is utterly miserable, I will hold off on planting another few days.

Check Your Soil Temperature

Does the soil in your garden feel warm to the touch? If yes, it's probably ready to plant. If not, hold off another week or two.

Stagger Your Planting

Some plants can tolerate the cold better than others. I will often plant my root vegetables and anything that I'm planning on direct seeding on that third weekend in May, but I might hold off on setting out my tomatoes, peppers and squash for another week or two. I use that week of lag time to harden off my starters.

P.S. wondering what hardening off is? We'll get to that at the end of the ebook. Basically, it's acclimatizing your plants to the outdoors.

Fall Frost Date

We've talked a lot about the first frost date, but we haven't really touched on the second. The Fall Frost Date is important for two reasons: 1. If there's a lot of time between the two dates, it means you could plant succession crops. (My growing season is too short, so the only succession crop I can manage is lettuce and radishes.) 2. It gives you an idea of when you need to harvest crops that could be destroyed by frost.

Don't let that last sentence fool you. All crops will eventually be destroyed by frost. However, some plants like Swiss Chard can tolerate a little. In my growing season and zone, our tomatoes generally don't get enough time to ripen on the vine, so we often have to pick them green before the first frost and let them ripen indoors. Start watching the weather two weeks before your estimated fall frost date.

If there is one night of frost in an otherwise warm week, you may want to cover your plants with old sheets overnight. If the forecast predicts multiple freezing nights, it may be time to pull everything out.

There is also no shame in pulling out everything early if you know that you might be too busy to get to it when the time comes. Our first frost date is usually in early to mid September. . . right when the back to school craziness hits. When in doubt, pull it out--unless you have enough time to cover it with sheets.

On the next page, I share with you my ultimate gardening checklist, which gives you an idea of what happens when from Winter through Spring.

The Ultimate Garden Planning Checklist

3-4 months before last frost

__Print out garden planer
__Order seed catalogues or look online
__Create a Pinterest board of ideas
__Fill out your plant wishlist
__Make note of seeds you already own
__Take inventory of gardening equipment and tools and decide what needs to be replaced
__Order seeds for starting
__Order bulbs, bare roots, trees and shrubs
__Organize seeds by when you plan to start them or direct seed.
__Write down each type of plant in your garden planner
__Determine frost dates
__Make a plan for starting seeds
__Make a plan for planting everything else
__Read gardening books and magazines

seed starting

__Assemble seed starting supplies
__Start flowers, peppers, artichokes, onions, and anything else in the 10-12 week starting range
__Start peppers, tomatoes, eggplant, and anything else in the 6-8 week starting range
__Start cabbage, squash, broccoli, cauliflower, pumpkins, or anything else in the 2-4 week starting range
__harden off seedlings one week before intended planting date.

The month you plan to plant

__Purchase starter plants
__Harden off starter plants
__Plan out your pots and containers
__Purchase new gardening supplies and equipment
__Prepare your soil
__Rototill if necessary
__Add mulch around plants or in walkways
__Build raised beds
__Fertilize
__Turn your compost
__Prune late flowering shrubs
__Set up trellises for beans, peas, and other vining plants you wish to grow vertically.
__Plant direct seeded flowers and vegetables
__Plant starters and seedlings
__Label where you've planted everything
__Check often to see if plants need water
__Divide perennials or plant new ones
__Walk around your garden daily to enjoy and manage pests before they become a problem.
__Make note of harvests, pests, weather and lessons learned in your garden journal.


Annual Stock flowers

Gardening Terms

Now that you're ready to pick out your flowers and vegetables to plant, there's a few terms you need to know. I've repeated a few of the terms we've already covered so far, just in case you skipped those pages.


Perennial Asiatic Lilies

Annual

A plant that has a life cyle of one year. Many cut flowers, bedding plants, and most vegetables are annuals. You can grow annual plants regardless of what zone you live in. The only major requirement is that there are enough growing days where you live to get the plant to maturity.


Heirloom Swiss Chard

Perennial

A plant with a lifecycle of multiple years. Perennials can live to be 30-100 years old! Some plants can be perennials in warm zones, but annuals in colder zones.

Heirloom

An open-pollinated plant that will create seeds that produce plants with most of the characteristics of the parent plant. Both flowers and vegetables can be heirlooms.

Hybrid

A cross-pollinated seed that is produced from two or more heirloom varieties. You can not collect hybrid seeds and plant them again the next year. The seeds will not retain the characteristics of the original plant. Both flowers and vegetables can by hybrids.

Determinate

A term commonly used with tomatoes. Determinate tomatoes (or bush tomatoes) are bred to grow to around 4ft and will stop growing once fruit starts growing. They are bred to ripen all at once, over a period of two weeks. These types do well in pots and require minimal staking. Do not prune (or sucker) determinate varieties of tomatoes!!

Germination

The development from seed to plant. Seeds need anywhere from 3-21 days to germinate, depending on the plant and variety, and growing conditions.

Indeterminate

A term commonly used with tomatoes. Indeterminate tomatoes (or vine tomatoes) grow in a vine approximately 6-10 feet in length. These plants do not do as well in pots and require substantial staking.

Days to Maturity

The number of days a plant takes to go from a seed to harvestable (vegetables) or blooming (flowers) plant. The day of maturity is considered the from the first harvestable vegetable or flower, not when most of the plant is harvestable.

Full Shade

A plant that needs 3 hours or less of direct sun a day.

Partial Shade

A plant that needs 3-6 hours of direct sun a day.

Partial Sun

A plant that needs 3-6 hours of direct sun a day, but does better the more sun it is given.

Full Sun

A plant that needs 8 hours or more of sun a day.

Helpful Hint: *Keep track of the growing requirements of everything that you plant in your yard! Write everything down in your garden planner, or save a tag from at least one of each plant you plant. That way you can always come back to it. Trust me, you will not remember what it's called or if it needed full sun or partial shade next winter when you're planning everything out again.*

Seed Starting Basics

When to Start

The time to start your annual seeds will depend on 3 factors:

- The length of your growing season
- How long the variety takes to bloom/mature
- When you would like the flower to bloom (or vegetable to ripen in the case of short-season vegetables)

I've included a list of when to start some common vegetables and flowers. However, it's always smart to check the seed packet to confirm the ideal time to seed start. Seed starting times are all measured by the date of the last frost in your area. While this will vary from year to year, each location has an average date.

Where you live will also have an average growing season length, which is the average number of days between the last frost of Spring and the first frost in the Fall. This number is important, because if you have a flower that needs 90-100 days to mature, but your growing season only lasts for 100 days, you're going to need to start it earlier so you actually get to enjoy your flowers or actually get a harvest.

Once you know your season lengths and frost dates, write the weeks before planting outdoors on a calendar, and mark each week leading up to it, from 1-10. Then, plant your seedlings on the appropriate week.

After I purchase my seeds, I read all the seed packets and sort out my seeds in the following categories:

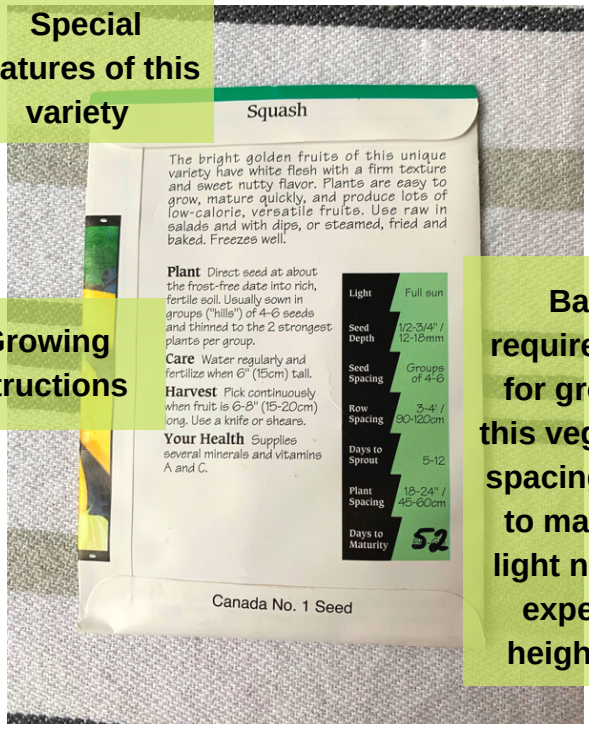
- Direct seed
- Direct seed or start 2-3 weeks before frost date
- Start 4-6 weeks before frost date
- Start 6-8 weeks before frost date
- Start 10-12 weeks before frost date

Not every plant will fall into these categories perfectly, so I just put them in the spot that makes the most sense to me. My growing season is very short, so I tend to start plants as soon as possible. For the plants that can be direct seeded or started 2-3 weeks beforehand, I will start a few plants and direct seed a few plants, allowing for a more continuous harvest in the season

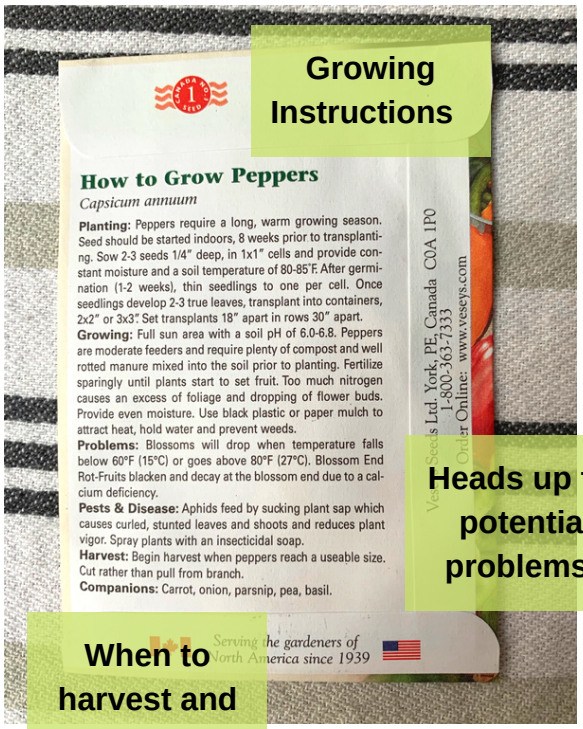
The Seed Packet Explained

Every seed company will have their own way of presenting information, but here's a breakdown of what you might find on a seed packet.

This one says it's a hybrid, so you can't seed save from it.



This one specifies that the days to maturity is from the time of transplanting (taking outside), not from seed starting.



Keeping Your Seeds Organized

There are many ways to keep your seeds organized, but this is the best system I've found. Be on the lookout for a plastic photo organizer. The small containers for photos are the perfect size for seeds! I have two--one for flowers and one for vegetables, but when you're starting out one container is sufficient. I get mine at Michaels, but you can get something similar here on Amazon.

Once I have my seeds, I organize them by vegetable/flower type if I have a lot of one thing, or combine different types of seeds that get planted at the same time. For example, I'll have my pumpkins, tomatoes, and sunflowers in separate containers, but I'll combine lettuce, kale, and swiss chard in one.

Styles & Setups

THE CHOOSE YOUR OWN ADVENTURE OF SEED STARTING

Seed Starting Equipment & Setups

Equipment

Set-Up

Correctly setting up your seed-starting area is going to be one of the keys of making sure your plants can thrive. Grow lights !

You also want to make sure that your house, or the area in which the seeds are starting to grow is going to be warm.

I would also recommend buying or finding shelves, so it doesn't take up a ton of room!

Seed Starting Containers:
This can be anything from egg cartons, biodegradable newspapers, jiffy pods, or even a paper coffee cup!

South Facing Window or Grow Lights:
You'll need a window that gets long hours of sunlight, or if you don't be sure to invest in some grow lights!

Seeds & Soil:
Be sure that the seeds you seed start do need to be started early and are capable of being started indoors in a small container. In other words, avoid root vegetables!

Calendar:
Having a calendar near your seed starting station is going to be extremely helpful when determining when to plant what!

Seed Starting Soils

Once you've been seed starting for a couple of years, your personal soil mix will come out of your personal preferences. Until that time, here's a couple of options.

Seed Starting Mix—this is a soil mix that's designed to be light and easy to start seeds in. The only drawback is that it can be difficult to find it in large enough quantities (think bale-sized) when you're starting a great number of seeds.

Potting soil—This is what I typically use and have great results. It's easy to find, easy to use, and easy to get in bulk. I personally use the #2 SunGrow Mix.

Garden soil—Please do not use soil straight from the garden. Even though seeds can obviously grow in it, your garden soil is not as light as soilless mixes. This means that your seedlings will have a harder time pushing their way through. Plus, you likely have a lot of weed seeds in your soil, and it would be very annoying to have to pick weeds amongst your new little seedlings!

Jiffy Pellets—Jiffy pellets are a great option for a beginner gardener. They are easy to use and feel fairly fool-proof. The only drawback is that they are more expensive when you're seed starting on a mass scale, plus the mesh they're enclosed in never seems to fully disintegrate at the end of the season.

Coconut Coir—Peat Moss is the basis of most potting soils and mixes, and is not good for the environment. Hopefully more coconut coir-based mixes will become available as consumer demand increases, but until then, if you choose to use coconut coir, you'll have to make your own mix. Coconut coir typically comes in dried out bricks, that you then hydrate with boiling water. Once your brick is hydrated, you mix up the coir, and add perlite and compost to your mix.

Watering is a little bit different with coconut coir, but if you're checking on your seedlings everyday, you'll easily catch any different water needs. Typically you'll be watering a bit more, and sometimes your plants will go grow a bit quicker.

Vermiculite--Vermiculite is usually added to the top of your soil to provide a light cover for the seeds. It is easy for the seedlings to push through, holds in moisture, and helps to prevent mould and algae.

Seed Starting Containers

Deep Root Seed Starters
These are your classic, purchaseable containers that are used. You ca buy them from most garden stores. I use these frequently, but they can become costly so I typically use both these and cost-efficient methods, such as the ones below!

Jiffy Pods & Biodegradable Newspapers
Jiffy pods are so easy and fun to use–I love them! Save the plastic parts for reuse, and fill them with new Jiffy Pods each season.
Biodegradable newspapers are extremely cost-efficient and easy to roll! Check out the next page for step-by-step instructions.

Egg Cartons
Egg cartons are super cute and Pinterest-worthy, but they're actually my least favourite method to seed start. They are not ideal to start seeds that require 6-8 weeks indoors. You'll have to transplant your starters to larger containers as the roots become too long and start to grow into the egg carton itself. Only start vegetables that require 2-3 weeks indoors.

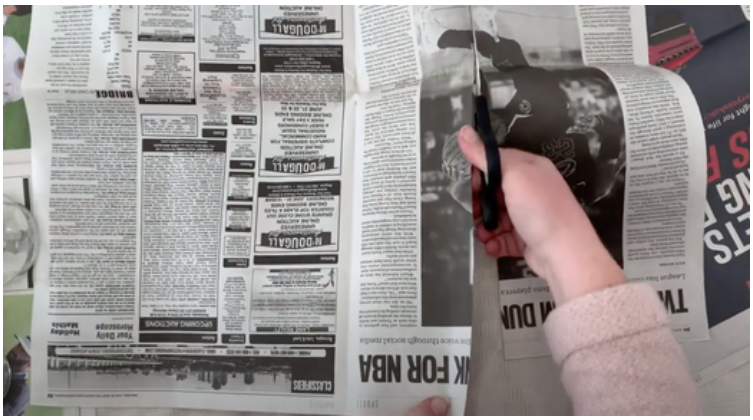
Other Household Objects
You do not have to buy special flats to start your seeds!
Use milk cartons and jugs or deeper plastic lids and plant away. You will either need to add drainage holes, or be careful not to overwater your seedlings.
Some of these items may include coffee filters, plastic containers, paper drinking cups, milk jugs, milk cartons, pop bottles, etc.

Newspaper Pots

Newspaper pots are amazing and once you start doing them, it's hard to go back! They are cheap, biodegradable, easy to do, and look cute! They're great for wind seed starting and you can plant them straight into your garden with no mess. Here's a tutorial on how to build them!

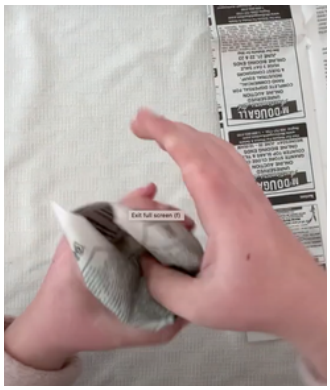
1. Cut Newspaper Pieces

You can choose any size of jar you like, I typically use 1 small mason jar and one larger jar that I found in the fridge. Once you find the jar you like, you lay down the jaw on the newspaper and a little bit higher than where the jaw measured, cut a long strip down the newspaper.



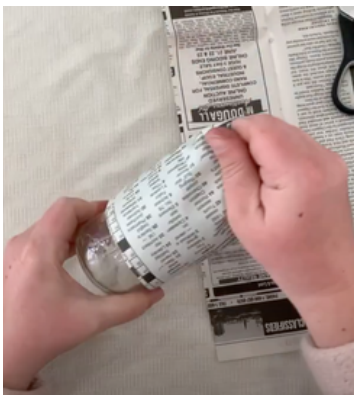
2. Roll Jar and Fold Inwards

Take your newly cut piece of newspaper and your jar. Lay the jar sideways at the bottom of the newspaper and roll until you hit the end. Be sure not to roll too tightly. Once finished rolling, tuck and fold the ends into the jar.



3. Remove Jar & Fill with Dirt

Remove the jar from the newspaper pot and set right side up. Be sure to make any adjustments if needed, such as refolding the bottom, folding down the sides, fixing any rips, etc. Once you are finished, fill with dirt and seed accordingly!



Different Types of Seed Starting

Window Seed Starting

You really don't need a grow light or other expensive equipment to start seeds. Seed starting from your window is relatively easy, but there are some limitations.

Grow Lights

So you're starting a bunch of plants from seed this year, and you need to invest in a grow light setup. Before you sell your firstborn to pay for the whole thing, here's what I've found to be some of the best grow lights for seedlings, depending on your budget and the kind of space you have.

Soil Blocking

Soil blocking is a fantastic way to seed start as it gets the lots of air flow to the roots, however, there are some drawbacks to this method as well.

Winter Sowing

This is probably the easiest version of seed starting and does not require nearly as much planning! It's also very cost effective, but only works with some plants.

The next few pages go into details with how-to's with pros and cons of the various methods.

From Your Window

South Facing Windows Are Best

First of all, you must have a South-facing window. East-facing ones can work too, but they must be larger and it also helps if the wall colour of the room is white or light.
If you try to start seeds from other directions, they will get too stretched out or “leggy.” Even better–a south facing corner window. In our last home we had one (two?) that faced south and east. You’ll also have to turn your plants everyday so they don’t lean too much in one direction.

Keep your House Warm

This is not the time to be stingy with the thermostat!! Many seeds require a temperature of around 21 degrees celsius to germinate. (That’s why you’ll see lots of ads for seed mat warmers in gardening magazines.)

Don’t Start Too Early

I live in Saskatoon, Saskatchewan on the Canadian Prairies. There simply isn’t enough daylight to sustain my seedlings until mid-February at the very earliest.
Wherever you live, don’t start your seeds until the Persephone days are over–the days generally between November and January when there is less than 10 hours of sunlight a day.

The easiest way to figure out when your Persephone days end is to go to the the weather app on your phone and calculate how many hours there are from sunrise to sunset. When it reaches 10 hours of daylight, you’re good to plant!

Window Shelves

This design fits right into your window frame. All you need is a minimum 1 1/4″ window ledge and a South-facing window. West and East facing windows can work too, but heat loving vegetables will not be as successful.

Materials and Tools

- Measuring Tape
- Drill
- 3/4″ Drill bit
- Circular Saw or Hand Saw with a Mitre Box
- 3/4″ Wooden dowel
- 1×6 Shelving board
- 2×2 board
- Wooden shims
- Hammer, for tapping the rack in place.
- Safety glasses
- 80 Grit Sand paper
- Optional: Wood Glue

Building Instructions:

- Cut the 2×2 board(s) just short of the height measurement of the window, so you have 2 same-sized pieces.
- Determine where you want the shelves to be on the 2×2 pieces, starting from the bottom up. Leave at least 12″ between shelves and the top of the window to allow room for the plants to grow.
- Mark the spots on the 2×2, making sure both pieces are marked at the same height.
- Drill 3/4″ holes through the 2×2's at those marks. (Remember the shelf sits on top of the dowels–adjust your height accordingly.) To avoid tear out, drill partway through on one side until you see the tip of the drill bit. Turn the wood over and drill on the other side.
- Cut the dowel into 6 1/4″ pieces, one for each hole. We made six holes for 3 shelves, but you may need more or less, depending on the size of your window.
- Cut the shelves to the width you'd like to fit inside your window.
- If your window is wider than 3 feet and you'd like the shelves to span the full width of the window, you should build a third support. It is tricky to make the shelf level with a third support, so we don't recommend going wider than 3 feet if you're a beginner woodworker.
- Sand all edges of the pieces to get rid of any splinters or sharp corners.

Assembly Instructions

Fit the dowels into the holes, making them all flush with the back side.

Place wooden shim on top of window. Tap the vertical supports into place with a hammer, wedging the support in place. Tap another wedge in the other side to fully secure it. Repeat the process for the other support.

Place the shelf on top of the dowels.

We have not provided any instructions for securing the shelves or dowels, as the intention with this project is that it is totally removable and folds up into as little space as possible at the end of the growing season. If you have pets or kids who would likely get into shelf, you can secure the dowels with wood glue, and screw the shelves in place

With Grow Lights

Best For Small Spaces:
If you're just getting started with growing vegetables from seed, a smaller grow light is the perfect way to try it out without spending a lot of money. These can cost around $50 and came with a bulb.

Professional Results:
The pink/purple LED grow lights do the job and are the lights that will give you the most professional results. If you're really interested in having a grow tent year-round filled with vegetables, these are the lights you should invest in for the best results.

LED, Fluorescent and Regular Lightbulbs:
My favourite bulbs to use are the fluorescent ones that are made especially for seed starting. The price really varies. I've paid $25 a bulb in-store but found these ones for much cheaper on Amazon. I like the way that my seeds grow with them. I feel that it's easier to get seedlings that aren't leggy.

The next page goes into further detail on the types of bulbs!

Growlights

It's difficult to find many of the cut flowers listed in this book as starters in a greenhouse. And if you do, buying all starters gets expensive fast. You'll eventually need a grow light, so here are some options to consider.

LED Growlight Bulb

These bulbs are energy efficient, ultra bright, and have the right light colours for your plants. They are more expensive and can be hard on the eyes.

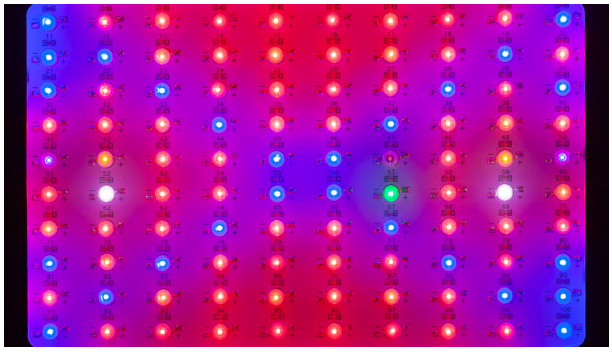
Fluorescent Growlight Bulb

These bulbs also have the right light colours for your plants, but are less expesive and use more electricity. They are easier on your eyes.

Shop Lights

The cheapest, but also most inefficient option. Shop lights need to be kept as close to the plant as possible, and you will need to use more of them per tray. I find 3 bulbs for a 2 foot by 4 foot shelf works well.

Professional LED Light



These bulbs are energy efficient, ultra bright, and have the right light colours for your plants. They are the most expensive, but will give you professional results.

If you need to watch your budget, buy used or get whatever you can afford to get the job done. Then, as you save up money, you can always replace cheap shop lights with better quality grow lights.

Soil Blocking

What is Soil Blocking?

Soil blocking is essentially the manual process of making soil blocks. This is done by packing a handheld tool called a soil blocker with a soil mixture (more on this below) and manually pressing that mixture into blocks. You can then plant your seeds in these blocks, place a tray of them under a grow light, and begin the germination process! With the proper technique, soil blocking can be a fun, easy way to seed start which eliminates the need for various seed starting pots and sowing trays.

PROS

- healthier root systems are produced through air pruning and an increase of oxygen
- no transplant shock–some plants don't like to be bumped up in their seed containers or moved once they're started. if you soil block, your roots stay in the same container and it's easier for the plant to climatise to life outdoors
- the ability to start more seeds indoors
- ease of transplant into the garden
- reduced use of plastic containers
- the ability to save money in the long run

CONS

- the initial cost of the soil blocking equipment
- not ideal for larger vegetables like pumpkins or squash
- can be a little more time consuming than other methods
- a sharper learning curve initially than traditional seed starting

WHAT SUPPLIES DO YOU NEED TO SOIL BLOCK?

- soil blocker
- potting soil, seed starting mix, or a combination of peat moss/coconut coir, perlite, all-purpose fertilizer, topsoil, and organic compost–for my recipe experiment see this video
- spray bottle
- seeds
- seed tray

The best method for keeping ¾ inch soil blocks moist is to use a spray bottle. Misting soil blocks with water helps hold them together and prevent them from drying up and crumbling.

Winter Sowing

Winter sowing vegetables and flowers is a wonderful way to start strong seedlings that don't really need hardening off. Over the winter, you can save your milk jugs, fill them up with soil and seeds, and be rewarded with your own seed starters in the spring. However, some seeds lend themselves to winter sowing better than others.

Winter sowing is not like indoor seed sowing! There is no real "schedule" except getting the plants out the door and on your deck before they germinate indoors and before all the freezing temps are over. The plants will not germinate until they are actually warm enough in their milk jugs to do so. The only thing you have to do is make sure that, once most of the outdoor temperatures are above freezing, your jugs have enough water. That's it.

Winter sowing is one of the cheapest and easiest ways to grow new perennials, especially if you're not lucky enough to know someone with an established garden who is willing to divide their perennials. Basically, if you find seeds for perennial flowers they are likely a good candidate for winter sowing. Like any first-year perennial flower, these plants will be small and flower late or maybe not even flower at all. However, in 3 to 5 years you'll be rewarded with a beautiful full-sized perennial that you didn't have to pay a lot for.

Supplies You'll Need:

- Rinsed-out milk jugs
- Scissors
- Soil
- Seeds (ones that will be able to grow via winter sowing)
- Label Sticks
- Marker
- strong tape

Steps:

- Cut your milk jug about 4 inches above the bottom (can be more or less if you like, as long there is enough room for soil)
- Put in soil and make sure all areas are filled, then add seeds and space accordingly
- Add 1/2 cup to 3/4 cups of water
- Grab a marker and labels, and write down what seeds were planted in that milk jug
- Put the top of the milk jug back onto the bottom, and tape the top and bottom together
- Place your milk jug outside in a place where sunlight will hit

Best Annuals for Winter Sowing

Vegetables

- Arugula
- Asian Greens
- Beets
- Bok Choi
- Broccoli
- Cabbage
- Cauliflower
- Cress
- Kale
- Lettuce
- Peas
- Radish
- Spinach
- Spring Onions
- Swiss Chard

Annual Flowers

- Amaranth
- Bachelor's Buttons
- Bells of Ireland
- Calendula
- Cosmos
- Larkspur
- Marigolds
- Poppies
- Sunflowers
- Strawflowers
- Sweet Peas
- Zinnias

If there's a vegetable or flower that's not on this list, it's probably because it has too long of a date to maturity, or needs to be seed sown the traditional way with grow lights more than 4 weeks before the final frost. Using those rules, plants like snapdragons, tomatoes, brussel sprouts, artichokes, and peppers are not good candidates for winter sowing, especially if you have a short growing season.

Common Plants

SEED STARTING AND GROWING ADVICE FOR FLOWERS & VEGETABLES

Common Vegetables

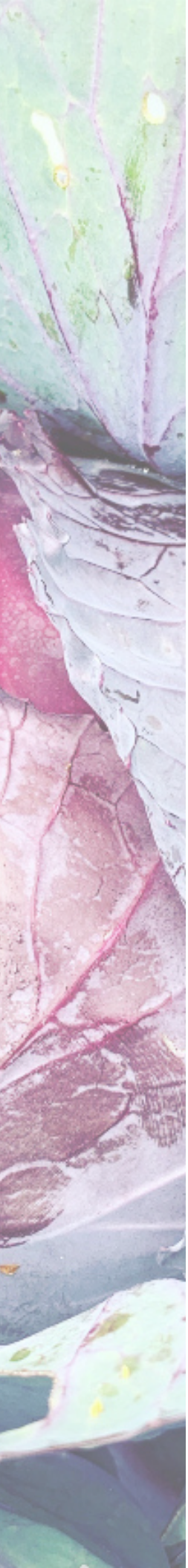
Here are some common vegetables and what you should know about planting them. When I say that a vegetable doesn't require much maintenance, I'm assuming that you will still regularly weed and water it.

Beans

When to seed: As soon as the ground can be worked.
Care & Maintenance: Not much
When to harvest: Every 2-3 days when they reach maturity. Do not plant beans if you plant to be away during their maturity date.
Notes: There are two types of beans, bush and vine. Vine varieties need a trellis to avoid rot and mold. Your trellis does not need to be fancy. Bamboo poles and string will work in a pinch. If you are planting beans that will be used dry, you will not harvest them until they are completely dried out.
Container Notes: Can be planted in containers
Bonus: Beans put nutrients back into the soil

Beets

When to seed: As soon as the ground can be worked.
Care & Maintenance: Not much
When to harvest: Beets can be harvested young if you like that size for pickling. To harvest cyclindrical types at full size, wait until you can see the purple part of the beet push up through the ground. You can also harvest the beet leaves to use in salad or cook as a side dish.
Container Notes: Can be planted in containers



Broccoli

When to seed: After the spring frost date, or start indoors 2-3 weeks ahead
Care & Maintenance: Cover with white mesh plant fabric to prevent bugs and moths.
When to harvest: When the broccoli has reached a size you like. Careful not to get greedy, or it may bolt while you're waiting for it to get grocery-store size.
Container Notes: Can be planted in containers.

Cabbage

When to seed: After the spring frost date, or start indoors 4-6 weeks ahead.
Care & Maintenance: Cover with white mesh plant fabric to prevent bugs and moths. Water daily to avoid splitting.
When to harvest: Late summer, or when the cabbage has reached a size you like.
Notes: If you are hoping to make sourkraut from your homegrown cabbage, grow a flathead variety.
Container Notes: Can be planted in containers.

Carrots

When to seed: When the ground is able to be worked.
Care & Maintenance: Thin approximately a month after they have been planted.
When to harvest: After the first hard freeze. Carrots can be harvested before then, but they will taste sweeter if you wait until it freezes.
Container Notes: Can be planted in containers as long as the container is deep enough.

Cauliflower

When to seed: After the spring frost date, or start indoors 2-3 weeks ahead
Care & Maintenance: Cover with white mesh plant fabric to prevent bugs and moths.
When to harvest: When the cauliflower has reached a size you like.
Container Notes: Can be planted in containers.

Corn

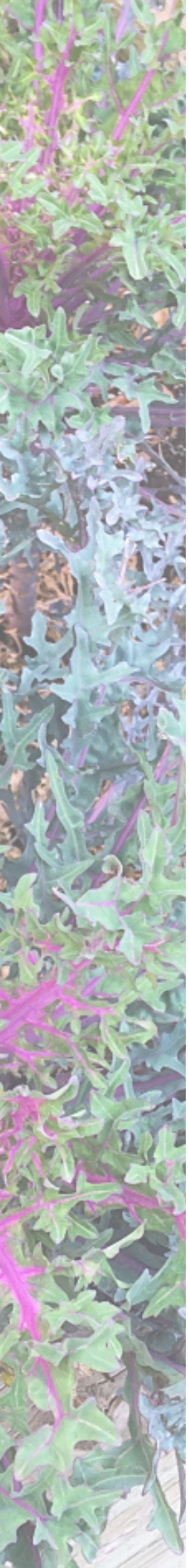
When to seed: After the risk of frost has passed
Care & Maintenance: May need to be thinned if planted by hand, otherwise, not much.
When to harvest: Late summer/fall. Corn is ready when the hairy part on the top of the cob gets brown and the cobs are firm and full.
Notes: Corn must be planted in a block formation of rows to promote pollination. 4 shorter rows are better than 1 or two really long ones. Do not plant an eating variety and ornamental or popcorn variety in close proximity to each other.
Container Notes: Not recommended to plant in containers

Cucamelons

When to seed: Start from seed indoors 4-6 weeks before frost date. Plant in the garden when all risk of frost has passed, 2-3 weeks after the frost date.
Care & Maintenance: Not much. Cucamelons are very difficult to harden off, so give them lots of protection when you do.
When to harvest: In late summer and before the first fall frost. Check every 2-3 days once the plant starts producing vegetables.
Container notes: Good in containers with a trellis.

Cucumbers

When to seed: Start from seed indoors 4-6 weeks before frost date. Plant in the garden when all risk of frost has passed, 2-3 weeks after the frost date. Cucumbers are tricky to harden off, and often do better when they are direct sown.
Care & Maintenance: Not much.
When to harvest: In late summer and before the first fall frost. Check every 2-3 days once the plant starts producing vegetables. Check every day if you are collecting smaller cucumbers for pickling.
Container notes: Good in containers with a trellis.



Eggplant

When to seed: Start 6-8 weeks before the last frost. Plant two to three weeks after the last frost when all risk has passed.
Care & Maintenance: Water regularly, and plant in a warm spot in your yard.
When to harvest: When the eggplant reaches 4-8 inches, depending on the variety and the size you like to eat them at.
Container Notes: Can be planted in containers.

Kale

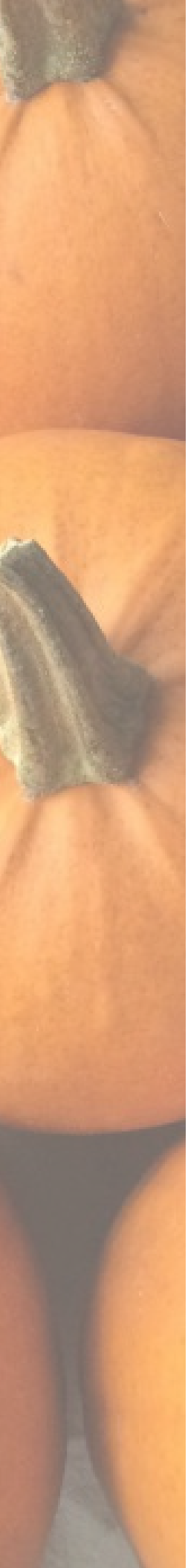
When to seed: After the spring frost date, or start indoors 2-3 weeks ahead
Care & Maintenance: Cover with white mesh plant fabric to prevent bugs and moths.
When to harvest: harvest at 3-4 inches for baby kale, or wait until the leaves are 8-12 inches.
Container Notes: Can be planted in containers, but they usually do not get as large.

Lettuce

When to seed: As soon as the ground can be worked
Care & Maintenance: Not much
When to harvest: Every two to three weeks. Plant two crops one week apart so you can harvest every week
Container Notes: Excellent in containers

Peas

When to seed: As soon as the ground can be worked.
Care & Maintenance: Not much
When to harvest: Every 2-3 days when they reach maturity. Do not plant peas if you plant to be away during their maturity date.
Notes: Peas need a trellis to avoid rot and mold. Your trellis does not need to be fancy. Bamboo poles and string will work in a pinch.
Container Notes: Can be planted in containers
Bonus: Peas put nutrients back into the soil



Potatoes

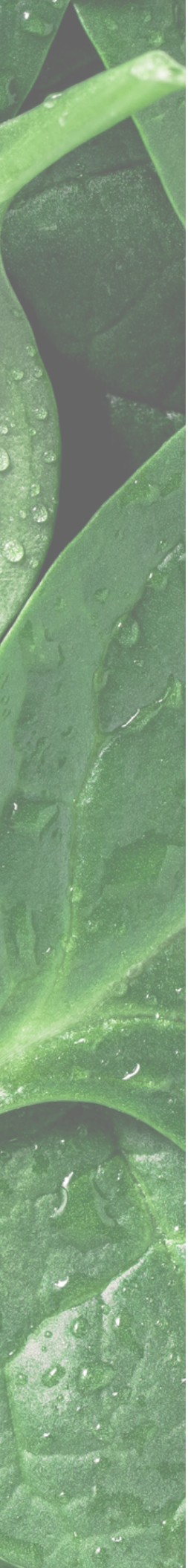
When to seed: Potatoes can be seeded as soon as the ground can be worked. Potato “seeds” are potatoes that have shoots growing out of them. Cut these potatoes in half, making sure that there is an eye (the part that has the shoot growing out of it) on each half. Dig your holes as deep as you can to prolong when you have to hill later in the season.
Care & Maintenance: Hill twice a season. To hill is to hoe the surrounding dirt up around the potato plant. You can also cheat and just add extra dirt or compost. Check for potato bugs throughout the season.
When to harvest: Before the fall frost. You can harvest young potatoes in early summer for fresh eating. If I have the luxury of space, I like to have a few potato plants just for this purpose.

Pumpkins

When to seed: Start from seed indoors 2-3 weeks before frost date, or direct seed 3 seeds in a small hill when the risk of frost has passed.
Care & Maintenance: Not much.
When to harvest: Before the first fall frost. Do not worry if your pumpkins have not completely ripened. They can be cut early and kept indoors to ripen.
Notes: Pumpkins may need help pollinating. Pick a male flower and brush the stamen against the female flower. No need to help them along if your variety is self-pollinating.
Container notes: Not recommended, except for miniature varieties like baby bumps and baby boos.

Radishes

When to seed: As soon as the ground can be worked
Care & Maintenance: May need to be thinned out once. Radishes are a quick growing crop that can be planted multiple times in a season. Plant a small crop every 2 weeks for a constant supply. Skip the hottest weeks of summer and plant one or two last crops in August.
When to harvest: 30-45 days, depending on the variety.
Container notes: Excellent in containers.



Spinach

When to seed: As soon as the ground can be worked
Care & Maintenance: Not much. Plant a crop every two weeks for spinach all summer long.
When to harvest: Pick often. Unattended spinach will bolt (flower) if left too long. Once spinach bolts, it becomes tough and not as good tasting.
Container notes: Excellent in containers

Squash

When to seed: Start from seed indoors 2-3 weeks before frost date, or direct seed 3 seeds in a small hill when the risk of frost has passed.
Care & Maintenance: Not much.
When to harvest: Before the first fall frost. Do not worry if your squash has not completely ripened. They can be cut early and kept indoors to ripen.
Notes: Squash may need help pollinating. Pick a male flower and brush the stamen against the female flower. No need to help them along if your variety is self-pollinating.
Container notes: Not recommended

Swiss Chard

When to seed: As soon as the ground can be worked.
Care & Maintenance: Not much
When to harvest: Every two to three weeks. Two crops one week apart so you can harvest every week
Notes: Swiss Chard will survive light frost and is a good vegetable for extending the season in a fall/winter garden
Container Notes: Excellent in containers

Tomatoes

When to seed: Start from seed indoors 6-8 weeks before frost date. Plant 2-3 weeks after the frost date, when all risk of frost has passed.
Care & Maintenance: Fertilize once or twice a season for larger tomatoes
When to harvest: Before the first fall frost. Do not worry if your tomatoes have not completely ripened. They can be cut early and kept indoors to ripen. Warmer growing zones will be able to pick all their tomatoes ripe off the vine and do not need to worry about picking their tomatoes green.
Container notes: Excellent in containers. Cherry varieties are easier to grow in containers.

Zucchini & Summer Squash

When to seed: Start from seed indoors 2-3 weeks before frost date, or direct seed 3 seeds in a small hill when the risk of frost has passed.
Care & Maintenance: Not much.
When to harvest: At maturity date and for a month or more. Check plants every 2-3 days or you will end up with baseball bat sized fruit.
Container notes: Works well in a large container.

How Much Should I Plant of Everything?

It’s impossible to make an exact formula for how many vegetables you should plant. However, I’ll answer a question with a question and give you some things to consider when you’re making your decision.

- What vegetables do you or your family actually eat?
- Do you want just enough for fresh eating?
- Are you planning to replace what you would buy at the grocery store?
- Would you like to give away some to your friends and neighbours?
- Do you have enough time in the fall to harvest what you want to plant?
- Would you be crushed if that plant didn’t produce as expected?
- Are you hoping to have enough to can or freeze for the winter?

Vegetable Seed Starting Timeline

10 Weeks

- Artichokes
- Peppers
- Brussels Sprouts
- Onions from Seed
- Celery

8 Weeks

- Tomatoes
- Eggplant
- Most Herbs
- Celery
- Peppers
- Tomatoes

6 Weeks

- Basil
- Broccoli
- Cabbage
- Cauliflower
- Kale
- Lettuce
- Tomatoes

4 Weeks

- Broccoli
- Cabbage
- Cauliflower
- Cucumbers
- Kale
- Lettuce
- Melons
- Squash

Direct Seed

- Asian Greens
- Asparagus
- Beans
- Beets
- Broccoli
- Carrots
- Cauliflower
- Cucumbers
- Kale
- Lettuce
- Melons
- Parsnips
- Peas
- Potatoes
- Pumpkins
- Radishes
- Spinach
- Swiss Chard
- Squash
- Zucchini
- Corn
- Onions from Sets

*some varieties are listed multiple times because there is a range when they can be started.

Cut Flower Seed Starting Timeline

10 Weeks

- Dusty Miller
- Snapdragon
- Icelandic Poppies

8 Weeks

- Agerium
- Alyssum
- Aster
- Celiosa
- Craspedia
- Dusty Miller
- Dianthus
- Gomphrena
- Snapdragon

6 Weeks

- Agerium
- Alyssum
- Ammi
- Aster
- Basil
- Celiosa
- Cosmos
- Craspedia
- Dianthus
- Gomphrena
- Marigold
- Rudbeckia
- Scabiosa (Pincushion)
- Statice
- Stock

4 Weeks

- Ammi
- Amaranthus
- Basil
- Dahlia
- Gladiolus
- Marigold
- Scabiosa (Pincushion)
- Strawflower
- Zinnia

Direct Seed

- Amaranthus
- Basil
- Bachelor's Buttons
- Bells of Ireland
- Calendula
- Larkspur
- Nigella
- Poppies
- Sunflowers
- Sweet Peas
- Zinnia
- All herbs used as greens

*some varieties are listed multiple times because there is a range when they can be started.

Seed Starting Timeline

Use this page to create a seed starting schedule with the seeds you want to plant. Double check your seed packets to make sure my suggested times match up with your particular variety.

8 & 10 Weeks

6 Weeks

4 Weeks

Direct Seed

Caring for Seedlings

WHAT TO DO SO THEY DON'T DIE

Helpful Hints

If you've never started seeds before, here are a few things to remember:

- Plants need time to germinate. This means your seeds won't sprout for at least a week, sometimes more. Your seed packet should say how long the germination period is.

- Water when the soil feels dry to the touch. If the ground is pulling away from the edges, you've waited too long.

- Use a water sprayer to water your young seedlings, or put water in a tray underneath them and let them soak from the bottom. You don't want to wash them out!

- Do all the fertilizer directions on the seed packet sound confusing? Water with a fertilizer formulated for seedlings/seed starting once every two weeks to give your plants an extra boost.

- Start with new seeds. Some seeds can be viable for up to 10 years or more, but your germination rates decrease. Test if old seeds are viable, soak them in water overnight and lay them on a damp paper towel. If they start to sprout in a few days, they are still good. If nothing or barely anything happens, throw them away.

- Stick to two or three types of plants to seed start the first year. It's easy to get overwhelmed

- Label everything. Don't think you'll magically remember what everything is, especially once you start seed starting most of your plants.

- Many plants in the same family look similar when they get their first set of leaves. You'll need to wait until they get to the "true leaf stage" or second set of leaves to see what they will really look like.

What will my seedlings look like?

When you've never seed started before, it's difficult to know if you're "doing it right" and if your plants are supposed to look like they do. While these pictures won't cover every single type of seedling, they should give you an idea of what different vegetables and flowers will look like when they first come up, so that you have extra confidence that everything is going as it should.

Vegetables can be grouped into around 9 different families of plants. You've likely heard some of their names thrown around the gardening world, such as Nightshade or Cruciferous. While I'm not going to break down every plant family, these are 6 of the most common seedling shapes you'll see when you first grow vegetables. . .

Lettuce, spinach, Swisschard, beets, carrots

Cucumbers, zucchini, squash, pumpkins.

Garlic, onions

Kale, broccoli, cauliflower, kohlrabi, cabbage, turnips, radishes

Peppers, tomatoes

Beans, peas

On the next page, I'll share a few of my cut flower seedlings. Again, these pictures will not cover every possible shape and size, but should give you enough confidence that your plants are looking as they should.

Annual Flowers

Asters
(bottom)

Eucalyptus

Feverfew

Celiosa

Strawflowers

Cosmos

Zinnia

Poppy

Nasturtium &
Marigold

Marigold

Nasturtium

Sweet Pea

My Seedling Care Routine

Once you have seedlings started, you'll need to check them every day. Make notes of when they germinate so you'll know in future years if certain varieties take a long time or not. If you're using trays, check the bottom of the tray for water levels. If the tray is dry, fill it again with approximately a litre of water.

For soil blocks, you'll need to gently touch the soil. If it feels dry to the touch, it's time to water. When watering your soil blocks, make sure to pour the water on the tray, and not directly on a soil block. You can also mist the smaller soil blocks so you don't risk breaking them.

In the beginning, you'll find that it may take two or three days between waterings. Once the seedlings have grown, their water needs will increase.

Seedlings need a minimum of 12 hours of light a day under a grow light. The ideal amount is 16 hours. The easiest way is to connect all lights to a timer, so you can essentially set it and forget it. If you don't have a timer, just put all the lights on when you wake up in the morning, and turn everything off before you go to bed.

Fertilizing Seedlings

Once your leaves have 2 cotyledons (the first leaves) and 2 true leaves, you can start fertilizing them once a week with fertilizer formulated for seed starting. I use a mix that has an NPK of 10-52-10. If you'd prefer to go organic, you can use fish emulsion fertilizer. But be warned—it has a terrible smell.

When the seedlings are young, I will only fertilize at half strength. When they are around 3 inches or larger, I'll switch to full strength. Never mix your fertilizer at a ratio that is more concentrated than what is suggested on the package—you'll burn your seedlings!
I try and do my fertilizing every Friday, simply because fertilizer and Friday both start with F, so it's easier to remember. Whatever day you choose, try and be as consistent as you can with it, and leave at least a week in-between.

The fertilizing routine will continue the entire life of the plant. However, I switch to a regular fertilizer once the plants are done the hardening off process.

Bumping Up Seedlings

If you've never heard of the term "bumping up" before, it's a fancy way of saying "moving your seedlings to a larger container." If you want to avoid bumping up altogether, you could start all your seeds in larger containers. The advantage to bumping up, is that you can start more seeds in a smaller space initially, then only pick the strongest seedlings to move on to the final container.

Ultimately it is a matter of preference. But if you're annoyed by blank spaces in trays and have a hard time cutting away a small seedling baby, you'll probably want to learn how to bump up.

I start my seedlings in either the 128 cell trays, or with the 3/4 inch soil blockers. You'll know it's time to bump up your seedlings at this stage when you lift the tray (or soil block) and can see roots at the bottom of most of them.

Once the seedlings have been bumped up to the next size (72 or 50 cell trays, or 2 inch soil blocks) you'll know they need to be bumped up again when you can see a lot of roots, and their growth seems to be stalled out even when you fertilize.

You don't have to use anything fancy to prick out seedlings to bump them up. I've used knives, spoon handles, chopsticks--basically whatever I had on hand that I could dig the seedling out and easily move it.

Choose from the biggest and best seedlings first. You don't have to bump up every seedling--especially if they're struggling.

Common Problems--And Solutions!

WHY IS THERE MOULD AND/OR ALGAE ON MY SOIL?!

Unfortunately, this is a really common problem when starting seeds at home. The good news is that neither the mould nor the algae will harm the plant. I use a sprinkling of vermiculite to help reduce both problems, but sometimes it still happens, especially with seedlings that will be staying in their tray for a long time.

Some people say that sprinkling the tray with pure cinnamon can help, but other studies debunk this as a myth.

You can try putting a low blowing fan by your seedlings, which should also help and improve the strength of your stems.

HOW DO I GET RID OF LITTLE FLIES?

The best way to get rid of these little flies is to put up yellow sticky paper on your seed starting shelves. You may have to do it for a few weeks to get all the flies at different stages in the life cycle, but it's the most effective way to kill them.

SOMETHING IS EATING MY BROCCOLI/CABBAGE/KALE SEEDLINGS!!

Those "somethings" are likely flea beetles, and they love to eat vegetables in the cruciferous family. Sprinkle some diatemaceous earth directly on the seedlings, and the bugs should disappear in a few days. If you water on top of the seedlings, and not from underneath, you'll have to reapply the diatemaceous earth after each watering.

HOW CAN I MAKE MY SEEDLINGS STRONGER?

The best way to make them stronger is by fertilizing weekly and simulating the wind--with a fan. Blow a fan on a light setting in the same room as your seedlings to help them toughen up and survivie the hardening off process.

HOW MUCH IS TOO MUCH WATER?

If you can see the water on top off the soil after it has a few seconds to soak in, it's too much. It's much better to bottom water seedlings in the tray under the cells. That way, when the tray is dry, it's time to water.

On the next page, we'll tackle to most common problem.. . .

Leggy Seedlings

This seed starting problem is so common that it deserves it's own page. Seedlings become stretched out looking (what we refer to as leggy) when they don't have sufficient light. This can happen a number of ways.

1. **If you're growing from a window, you're either not growing from a south-facing window, or the tray is not close enough to the window.** Seedlings grown by a window tend to be a little bit leggy no matter what you do, but turning the tray around every day so all sides get a chance to be as close as possible to the window helps.
2. **You don't have enough grow lights for the space.** If you're using cheap lights (like shop lights) that aren't as possible, you'll generally need 3 bulbs in a 2ft. x 4ft shelf. If you use more expensive lights, like the Agri-Sun or Sunblaster, you may be able to get away with 1 or 2 in that same space.
3. **The Grow lights aren't close enough to the plants.** Cheap grow lights should be spaced 1-2 inches away from the plants. As the plants grow, you'll raise the lights. The professional quality lights are powerful enough that they can be placed farther away. You'll know your plants are too close if you start to see burn marks on the leaves.
4. **Your germination station is in darkness, and you miss when the first seedlings germinate.** This is why I don't recommend setting your seedlings somewhere else in the dark to germinate. I've done it many times and it works, but 90% of the time I miss that short window to put them under the grow light and end up with leggy seedlings.

Unfortunately, once seedlings become leggy, they can not be fixed. The exception is tomatoes, which can be planted farther down into the ground.

The seedlings on the left have reached the point that it is probably better to start over. In my opinion, the seedlings on the right are still salvageable as long as you move the grow light closer as soon as possible.

Cold Season Flowers & Vegetables

Some vegetables and flowers actually do better when the weather is cooler. These are the ones that will say something like "sow as soon as the soil can be worked" on the seed packet.

Most of these prefer to be direct sown, and you can often plant them a month before your final frost date. Seeds are smart, and they won't germinate unless the temperature and soil conditions are right. If you do get surprised with a late snow or frost just as your seedlings emerge, you can always cover them with an old sheet or frost fabric if you're worried.

If you decide to plant out starts, you'll have to harden them off the same way you do later in the spring. I find the process is actually easier, because they often don't struggle with being burned in the same way because the temperatures aren't quite as warm.

Watch the temperatures twice a day, and cover them with frost fabrice if it will be below freezing.

VEGETABLES

- Arugula
- Asian Greens
- Beets
- Broccoli
- Brussels Sprouts
- Cauliflower
- Kale
- Lettuce
- Onions
- Radishes
- Swiss Chard

FLOWERS

- Bachelor's Buttons
- Calendula
- Dusty Miller
- Feverfew
- Larkspur
- Nigella
- Snapdragons
- Statice

Managing cool season plants is a bit of a learning curve, especially if you're in a cold climate with a short growing season. I recommend experimenting with timings and a bit later in your seed starting journey, once you've got the basics down.

Also, don't forget to water regularly! I often forget to water my early season crops, because the temperature isn't warm. My brain uses the cue of hot weather to go water, and in a cool April, I need to constantly remind myself not to neglect my early plants.

Hardening Off

The last step to seed starting is to safely transplant your seedlings outdoors. Do not take them directly from your seed tray to their new location immediately. They will likely all die because they are not accustomed to the direct heat, cold, and wind of the outdoors. To avoid this scenario, set out your seedlings in a sheltered, shady spot during the day for a week before you intend to plant them. If you're able to continue this process over 2-3 weeks, even better. Bring them indoors every evening.

If the weather is bad and you can not take your plants outdoors, it is okay to leave them indoors for a day. A day indoors and not under grow lights will not ruin them once you've started the hardening-off process.

On planting day, try and plant earlier in the morning or later in the evening when the sun is not so intense. Water every day for a week until established. (Depending on your weather, you might be watering every day anyways, but sometimes if the weather has been cooler or it has recently rained, you can skip a day.)

Finally, bask in your success! You've just taken a plant from seed to starter, and hopefully saved yourself some money in the process.

Hardening off is hard! Here's my best tips. .

Don't let all your hard work seed starting go to waste! Here's exactly how to harden off your seedlings so they have the best chance possible. . .

Day One: At least one week before you intend to plant outdoors, bring your seedlings outside for 3 hours. Select a spot that receives almost no wind and is in the shade.

Day Two: Set seedlings outside for 4 hours in the same conditions

Day Three: Set seedlings outside for 6 hours in the same conditions

Day Four: Let seedlings get some morning or evening sun--around an hour or two

Day Five: Continue to give seedlings an hour or two of morning/evening sun, increasing their time outdoor to 8 hours.

Day Six: Set seedlings out almost the whole day and bring in at night.

Day Seven: Planting Day!! Plant either in the morning or evening, avoiding the hottest afternoon sun. Make sure seedlings get lots of water, and protect with a cloche, coffee can, or top of a milk jug to help further protect seedlings from the harshest wind.

During this process you may need to give additional water during the day if it has been very windy or hot.

What To Plant Where

Do I really have to rotate crops at the home garden level?

In short--no. As long as you amend the soil every year with compost, there is no need. The one exception I make is for corn, which pulls a lot of nitrogen out of the soil. Follow up a year of corn in one spot with a year of beans and/or peas.

To be honest, I didn't really believe you could skip crop rotation at the home garden level. But I've been planting peppers and tomatoes (in the same family) for 4 years in the same spot with no disease issues.

Then how do I decide what vegetable goes where?

You may have heard a lot about companion planting, but in the reading I've done, it appears that not every companion combination out there works 100% of the time. I think of companion planting more in terms of how big plants get, and which crops leave before others, leaving extra growing room behind.

Your seed packet will tell you exactly how much space to leave between plants and rows, but it can still be hard to visualize how big your plants will get, especially if you're brand new to gardening.

Vining plants like cucumbers, tomatoes, pumpkins, and squash all require a lot more space than root vegetables like onions, carrots, and beets. Small, heat and sun loving plants like peppers will decline if placed near a much larger vegetable that will eventually shade it out.

I highly recommend getting the **Seeding Square** (affiliate link) even if you have no intention of square foot gardening. It makes measuring out a garden super simple with near-perfect results every time.

The best way to decide what goes where is to plant by height. Think of your garden as a classroom photo. Tall kids (or plants) in the back, short kids (or plants) in the front. That way, nothing gets shaded out and everything has a chance to give you the best harvest possible.

That's it!

Seed starting doesn't have to be complicated. While there is a bit of a learning curve, you can save money and grow unique varieties the nurseries don't sell.

I'd love to see your results! Show me by email at kristen@shiftingroots.com, or on IG @shifting_roots and by using my hashtag, #growrootswithus

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May I suggest the Growing Roots Gardening Guide or Small Garden, Big Harvest?

And as always, Happy Gardening!