



Garden Seed Guide

Starting your vegetable plants from seed can seem like a daunting task. We made this garden seed guide to help new gardeners have a successful vegetable garden and give experienced gardeners a few extra tips and tricks to add to their arsenals.

Variety Selection

Your first step to starting your own seed is to select what varieties you would like to plant! When selecting seed, the first question you must ask yourself is **do you want organic seed or conventional seed?** The difference between the two is how they are handled and how they were grown. Organic seed was grown off parent plants that were grown without the use of non-organic chemical sprays or fertilizers. Additionally, special precautions have been made to ensure organic seed does not come in contact with anything that wouldn't be considered organic. An organic German Giant Radish is the same as a conventional German Giant Radish except for how they were produced. If you're an organic grower you must use organic seed for your product to be considered organic.

Once you decide organic or conventional, the next step is to decide which varieties to grow. Our catalog does a great job describing the differences between many of the varieties but Here are few we want to highlight:

Beans: Our bean seed selection has two different growth habits. Some beans will climb surfaces—these are called **Pole Beans**. The other beans do not climb surfaces—rather they maintain a mostly upright and low to the ground shape—These are called **Bush Beans**.

Peas: There are 2 main groups of peas too. First are the **Shelling Peas**. These peas are grown for the peas within the pod. They are harvested when plump and then the peas are taken out of the pods. The second group of Peas include **Snap and Snow Peas** are eaten when the pod is less developed. These pods are edible, and they are usually eaten as is.

Squash: Squash are also divided into two groups. **Summer Squash** is eaten when the fruits and seeds contained within are less developed. **Winter Squash** are varieties of squash that are left to mature on the vine and develop hard rinds. These are much sweeter and heartier than Summer Squash and they store significantly longer.

Tomato: Tomatoes have two main growth habits: determinate and indeterminate varieties. **Determinate** varieties have a size that the tomato is genetically set to grow to. These will hit a specific height and the growth tip will terminate and stay compact. **Indeterminate** varieties will continue to vine indefinitely—or at least until its pruned. Indeterminate varieties may be better producers.

Seedless Watermelon: Seedless watermelon need a second variety to be a pollen donor. It is not self-fertile. We recommend planting Sugar Baby with our seedless watermelon varieties for optimal pollination!

Planting and Timing

Once you have selected all the varieties you're interested in growing, the next step is to plan out your planting. Each species of plant has different developmental speeds, so when planting seed for spring gardening. Its important to know when to plant each variety so they can be mature enough for transplant at the right time of the year. Below is a chart describing the indoor seeding date ideal for southern and central Minnesota.

<u>Early February</u> Leeks, Onions	<u>Early March</u> Broccoli, Cauliflower, Kale, Cabbage, Brussels sprouts, Kohlrabi, Head Lettuce, Swiss Chard	<u>Early April</u> Tomatoes, Tomatillo, Spinach, Herbs
<u>Mid-February</u> Celery	<u>Mid-March</u> Peppers, Okra, Eggplant	

Here in Southern Minnesota, our average last day of frost is May 15th. This is around them time many people will target outdoor planting. Keep an eye on the forecast though! If the forecast is cold, it will probably be best to hold off outdoor planting until warmer temps. Before you can transplant outdoors you need your plants to go through the process of **hardening off**. Hardening off help acclimate your plants to the harsh outdoor growing environment. Many people have different approaches to hardening off, but here is an easy way to approach it. Put the plants you're prepping to plant outdoors in a space where they don't get intense sun of wind. Keep them outside for an hour then bring them back in. Do this every day for a minimum of 7 days adding 1 extra hour every day. After this point, the plants are ready to be planted. They may need extra water during this time so keep a close eye on them.

Some plants can be transplanted prior to the last day of frost as they can handle much cooler weather than the rest. This group of plants are all the varieties that are seeded in early March (see chart above). Keep an eye on the forecast, but if your temps are forecasted to remain above 27 degrees then you're ok! Usually, you can get away with planting at least a few weeks before the last day of frost. Lettuce can handle a light frost but be cautious of extended periods of time with temperatures below 30 degrees F.

Not all seeds need to be planted indoors. Varieties like peas, beans, squash for example can all be sown directly in the soil. When direct seeding into the soil, soil temperature is very

important. It is worth picking up a soil temperature probe if you're planning on direct seeding plants in the spring. For most seeds, trying to plant them when the soil temperature is 50 degrees or lower can be detrimental to the seedling. This can cause stunted plants or even cause the seedling to be overtaken by fungus. This minimum temperature varies between varieties. Below is a chart showing what minimum soil temperature is required for each plant that is commonly direct seeded in the Spring. It is important to note that these are minimum temperatures for germination NOT necessarily optimal temperatures.

40-Degree Soil Temps

Peas, Turnips, Radish,
Lettuce, Carrot, Beet

50-Degree Soil Temps

Asparagus

60-Degree Soil Temps

Beans, Cucumber,
Eggplant, Muskmelon,
Pumpkin, Watermelon,
Squash, Sweet Corn

Seed Starting and Seedling Care

When planning on sowing your seeds indoors it's important to make sure you have everything you need for successful germination and happy transplants when it's time to get planted outdoors. A light soil is a good place to start. Many potting soil companies sell a seed starting mix that is designed to be the perfect germination environment. These help the seeds stay moist but not so swampy that they rot. It is best to pre moisten your soil prior to planting seeds within. Sometimes potting media can be very dry in the packaging and repel water. In this situation pouring it into a container and adding water and stirring it up will help rehydrate the soil and prep it for seeding. When your soil is ready it's time to plant! It is ideal to start seedlings within a garden flat in cell packs. This makes it easy to separate out the plants and its more efficient for space. The advantage to garden flats is that they can be outfitted with a clear plastic dome cover. Covering your seeds after planting will help hold onto moisture so the seeds don't dry out. This is especially important for small, seeded varieties that need to be planted closer to the soil surface. Once seedlings start to germinate it is important to uncover them to prevent disease. Another thing that will increase your germination and help you grow high quality seedlings for transplanting is using a bottom heat mat. Heat mats increase the soil temperature between 10-20 degrees above the air temperature. This environment is more favorable to seed germination and root development.

Good lighting is important for seeds. When seedlings don't get enough light, they get tall and spindly and weak. They may get top heavy; tip over and never recover. A bright grow light will keep them healthy and the proper size!

Once your seedlings are growing and germinated, you just need to take care of them! Seedlings are sensitive to over watering. A disease called Damping Off happens when the soil is too wet for too long. This causes the base of your plant to rot, and the seedling will tip over and die. Allow your seedlings soil to dry just a little to prevent disease. Different plants will develop at different rates. This causes some plants to dry faster than others, so keep a close eye on everyone to make sure they get enough moisture. The next big milestone for your plant babies will be when they grow their first true leaves. The first two leaves you see poking out of the soil are called Cotyledons or seed leaves (Not all plants produce these—your onions, chives, sweet corn and leeks are the exception in the garden seed world.). The cotyledons job is to fuel the seedling until its able to start producing its own food. Once the seedling has its true leaves it can do just that. At this stage, it is best to start your seedlings on a fertilizer regimen.

Everyone has a slightly different approach to feeding seedlings. How you fertilize varies depending on the fertilizer you use. Each fertilizer product will have different instructions for frequency and dosage on the label. Tweaking the dose and frequency may be a helpful strategy. For example, using an all-purpose Miracle-Gro watering at half strength at twice the frequency may help keep your fertility consistent for your young hungry seedling. Lower strength per feeding may be gentler on your seedlings developing root system as well. For example—A regular dose is $\frac{1}{4}$ tsp per $\frac{1}{2}$ gallon of water every 14 days. Adjusting it to $\frac{1}{4}$ tsp per 1 gallon of water every 3rd watering would be a great potential strategy!

Growing Season Tips

Once you Have your plants in the ground and growing there are a few tips we can offer to help ensure your success!

1. Mulch your plants. Using untreated grass clippings, chopped leaves, paper bags, landscape fabric or whatever you may have available. Covering the ground under your plants will help hold onto moisture, help prevent disease and keep your roots cool!
2. Maintain consistent even moisture as much as possible. Uneven moisture can cause issues like blossom end rot that can ruin a good portion of your vegetable crop.
3. Avoid getting leaves wet. Water your soil below your plants and not the plants themselves. If you do get the leaves wet, make sure they have time to dry off completely before nightfall or you may have issues with foliar pathogens. The ideal method to water is with a soaker hose below your plants (and ideally below your mulching!)
4. If you have any issues take pictures, snip samples, and take them to us! We would love to help you solve any garden issues so you can have a successful garden!