

Starting Plants from Seed

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Each small seed has the potential to become one beautiful plant. Germination in plants is the process by which a dormant seed begins to sprout and grow into a seedling under the right growing conditions. Three things are crucial for seeds to germinate: heat, soil and water.

Preparation:

Most seeds will like warm soil when germinating; keep the soil temperature between 60° and 75°F, if possible. Heating mats help accomplish warm soil while the air temperature can stay cool. Heating mats also speed up the germination process. Seedlings are tender and can be susceptible to problems. They need light (artificial is best during early spring) and airy soil to keep them from getting a fungus or disease. Don't use soil from outside in your garden. Buy seedling mix at the garden center, or make it yourself:

- 1 part peat moss
- 1 part perlite
- 1 part vermiculite

Seeds need **water** to begin the germination process. Water helps crack the seed coating and quenches the thirst of a growing seedling. Too much water can rot the seedling; keep the soil damp but not soaking. Water your seedlings from the bottom of the tray versus overhead if possible.

Planting Seeds:

Buy the seeds you want or visit the True to Seed Seed, Sharing Library (located in the CDA public Library) and follow the instructions on the packet. The **average annual last frost date in our area is May 15 – May 30**. Seed packets have all the information you need about planting depth and spacing. Some seedlings don't transplant well, while other plants, such as peas, beans, poppies and nasturtiums, grow better when sown straight into the ground. This method is called direct sowing. Label your seeds. Seedlings that have popped out of the soil need a lot of light – 12 to 15 hours a day. Use fluorescent shop lights (or grow lights) that can be hung on a chain from the ceiling or beneath a shelf. Add a self-timer. A heat mat designed for seed starting will ensure the success for your germination rates and root growth as seeds want warm soil but cool air temps. It's time to **fertilize** when the first "true leaves" have emerged. The True Leaves are usually the second set of leaves. You can water the seedling with diluted sea kelp, liquid fertilizer or water.

Soil Blocking:

One method for starting seeds is the soil block. A different mixture of soil (or recipe) is needed when using soil blocks. See recipe below. Soil block makers create blocks of growing medium that have been lightly compressed, so they maintain their shape without the need for plastic containers. As seedlings grow, their roots reach the edges of the soil block and are "air pruned" because of the separation between the blocks. This separation also helps increase the amount of oxygen available to the roots, which can increase vigor. This creates a substantial advantage when seedlings are transplanted into the field; reduced root disruption means they are less prone to transplant. It also drastically reduces or eliminates the number of plastic pots you use and store.



Soil Blocking supplies can be purchased from:

- Ladbrooke
www.soilblockers.co.uk
- Territorial Seeds
www.territorialseed.com
- Johnny's Seeds
www.johnnyseeds.com

Here are two ratios with measurements, for the soil mixture only to be used with soil blocks:

Step 1. Buy Blood meal (or cottonseed meal if you have to), Rock Phosphate and Greensand in equal sized bags. Dump them into a 5 gallon bucket and mix it up. Your ratio is equal parts of each or a 1:1:1 ratio. Then mix it up and measure out as noted below. I store this bucket and use it on many things and it lasts a few years for me. The bucket I use marked 1:1:1 for the ratios. This mix gives me a nutrient level of 15-3-.1 which is the N-P-K.

I mix up the amounts (larger or smaller) depending on what I need. I let it settle once mixed for a week or two before I wet it to make the soil blocks. I wear a dust mask so I don't breathe in the fine particles when I am mixing.

Step 2 for a Larger Amount:

I use a coffee grounds container that holds about 12 cups of liquid (we will call that a part).

- 3 parts Peat Moss into a rubber container with a lid
- Then add a little under, or just at 1/2 Cup fertilizer from the bucket you mixed above (with the 1:1:1 ratio) and ensure it first blends with the dry peat moss.
- Mix well
- Then add 1 part perlite to the mix
- Then add 3 parts compost to the mix
- Mix

Step 2 for a Smaller amount:

I use a container that holds about 7 cups. It is a 48oz (3 lb) cottage cheese container (we will call that a part, its just smaller than the one above).

- 3 parts Peat Moss into a rubbermaid container
- Then add just under 1/4 Cup fertilizer from the bucket you mixed above (with the 1:1:1 ratio) and ensure it first blends with the dry peat moss.
- Then add 1 part perlite to the mix
- Then add 3 parts compost to the mix
- Mix

Kara Carleton adapted this from an old recipe from Eliot Coleman and uses it on starts each year.

Transplanting:

Some seedlings will need to be **transplanted** to a large pot before they're planted in their permanent location. Go just one or two pot sizes up. If you plant a seedling in too big of a pot, it's difficult to control the soil conditions, and the plant won't do as well. If the seedling looks pot-bound, coax out the roots. Otherwise, treat them gently. Plant into a mixture with organic compost to help amend the soil.

Hardening Off:

After your plants have developed five true leaves, it's time to get them outside. They'll have a better chance if you ease them into the outdoors through a process called hardening off. Bring your seedlings outside and put in a sheltered, shady location. Leave them out for a few hours the first day(s); gradually,

increase their time and exposure, until they're finally used to being out in full sun, wind, etc. Cold frames are good for hardening off plants. Generally speaking, hardening off can take 1 to 2 weeks.

Transplanting to the Outdoors:

Dig a hole twice the width of the pot that the plant is currently in. Keep the depth the same. Some plants such as tomatoes can be planted more deeply – their stems will produce extra roots. Gently remove the plant from its current pot, place it in the hole, backfill with soil, press the soil firmly, and water it in.

Protecting Young Plants:

Give the young plant some protection if the weather turns cold. A cloche, bell jar or plastic jug works well for this. Cut off the bottom of the jug and place over the young plant on cold nights. To avoid overheating your sensitive seedlings, remove these covers if the sun comes out.

Direct Sowing:

Raised beds are a great way to grow plants. They warm up sooner in the spring and it's easier to control the soil environment. Seeds that can be sown directly in the soil include:

<i>Beans</i>	<i>Cucumbers</i>	<i>Spinach*</i>
<i>Beets*</i>	<i>Lettuce*</i>	<i>Squash (summer and winter)</i>
<i>Carrots*</i>	<i>Peas*</i>	<i>Swiss chard*</i>
<i>Corn</i>	<i>Radishes*</i>	<i>Turnips*</i>

**These crops can be sown more than once a season.*

Companion Planting:

This is a method of grouping plants to cooperate instead of compete. A familiar example of companion planting is the combination of marigolds and tomatoes – the marigolds repel pests that love tomatoes.

Other companion combinations include:

Potatoes and beans – confuse the Colorado potato beetle
Corn, squash, and beans together – the three sisters method
Garlic and roses
Rue and roses
Coriander and potatoes
Carrots and onions inter-planted will confuse pests

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