SEED STARTING BASICS
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BASIC MATERIALS

Seeds

Seed are available at stores, nurseries, and online (or catalog)

- Organic seeds are from plants grown organically and have followed the strict organic certification process. Organic seeds have been selected for their proven resilience and beneficial traits, such as greater pest and disease resistance.
- Heirloom seeds are at least 50 years old that have been grown, saved, and passed down for generations. Heirloom seeds come back true to their original form year after year.
- Regular seeds -- known as Hybrid seeds -- are usually produced in a greenhouse setting that is specifically designed to produce seeds.

Seed Starting Mix

A good quality soilless mix is a key ingredient to a successful outcome since they are lightweight and pathogen free. Do not use potting soil or garden soil since they are heavy and have pathogens. There are many types of mixes now available:

- Peat based mixes have been popular for decades due to their light weight. Make sure that the peat mix contains a "wetting agent" since peat doesn't easily absorb or hold water without it.
- Coconut coir is a by-product of the coconut industry. Coir is naturally high in salts and seedlings are very sensitive to soluble salts. Many gardeners have had poor results from Coir compared to peat-based products.
    - Don't press it down because it will repel water and won't have enough air space for the roots.
    - The surface of coir dries out much faster than peat so cover the seeds with vermiculite or sand.
- Jiffy pellets – easy to use but best if you will be transplanting to a larger pot or outdoors in a short time frame
- Jiffy pots – I like these for plants that don't like to be transplanted or those with a tap root. So start the plant in them and then directly to the garden but make sure you tear off any exposed peat since it will wick away moisture.
- Pitt Moss – made from recycled organic cardboard and paper (with strict oversight) it is lightweight and holds moisture. Best mixed with 30% peat for seed starting.

Containers

Anything from a yogurt container to cell trays will work - just make sure they all have drainage holes

- You'll also need to cover the container during germination to hold in moisture and prevent evaporation – a humidity dome, plastic wrap, or a clear bag will work

Labels and sharpie

Always write out your label before or after sowing your seeds in a pot. Add a date as well

Heat mat (optional)

Heat mats work very well to speed up germination time for seeds requiring a minimum germination temperature of 70 degrees (most seeds). Usually cost around $20 and well worth it

Lighting

- Window light will cause seedings to stretch and get leggy since the light isn't strong enough
- Any type of fluorescent shop light will work
- There are LEDs, full-spectrum bulbs, and fixtures with only red and blue lights. Red light promotes plant flowering and fruiting, and blue light promotes plant growth stems and leaves.
- Keep lights on 12-16 hours a day – a timer is invaluable

Small fan (optional)
Air circulation is a key to keeping away fungal diseases, such as damping off as well as strengthen stems

Watering Can
It's helpful to have a variety of watering devices – a gallon can work well when watering trays but a small lightweight can is best for spot watering but be very careful not to injure the seedlings

*** HOW TO PLANT SEEDS SUCCESSFULLY **

1. Determine the dates that your seeds should be started. The seed packet will tell you how many weeks before planting outdoors so count back and that gives you the date. Our last frost date is May 15 so if a seed should be started 8 weeks prior to planting then start the seeds on March 21.
2. Determine germination rates and heights of the seeds. This is important because you don't want to have a cell tray that has seeds that will germinate in 3 days with ones that take 10 days. This is because once seeds start to germinate, they will need to come off the heat and the humidity dome needs to be removed. This won't work if you have a mix of seeds that germinate differently.
3. Put moist soil (not wet) into container and tamp container down to settle the soil and add more as needed to come to the top of the container – do not press it down otherwise you won't have good aeration
4. Make an indentation in the soil for the seed – seed should be planted to a depth specified on the packet or 2 times the width of the seed. Don't stress over this since it's hard to be accurate!
5. Put seeds in the indentation. Note: if seeds are very tiny and require light, then make a very shallow indentation.
6. Lightly cover seeds (will be stated on packet) with the soil mixture or fine-grade vermiculite.
7. Gently press down to make sure you have good seed to soil contact needed for germination
8. Water or mist lightly
9. Add label
10. Add water to the bottom of the tray to create humidity
11. Cover with humidity dome or plastic wrap
12. Put on heat mat if you have it. Note: if seeds are covered there is no need for light at this point
13. Remove humidity dome once seedlings start coming up
14. At this point put the tray under lights, which should be 2-3" above the seedlings. Keep moving light up as the plants grow. Adjust light farther away if you notice true leaves are getting beige spots or plants look stressed
15. Use fan to control disease
16. Check daily to make sure soil continues to be moist and check for pests and diseases
17. Once the true leaves come up it can be transplanted to a larger pot if necessary
18. The hardening off process, which is acclimating the plants to the real sun, begins two weeks prior to the planting date – to me this is the most labor intensive and frustrating part!
    a. Too much sun will cause sun scald and the leaves will be bleached out. It won't kill the plants, but it will take time for them to recover
    b. Day 1 – put them in the sun for 30 minutes and then bring them back in for the rest of the day
    c. Day 2 – put them in the sun for 1 hour and bring back in
    d. Repeat by adding another 30-60 minutes each day until you reach 8 hours. Plants can then be left outside (unless temps get into the 30's)
    e. If you work or you don't have time for this process, then put them in a shady spot that gets dappled light at some point in the day. This will take longer. Another option is to use shade cloth that you put above the plants. Shade cloth comes in various degrees of sun block from 25-90%

Keys to germination

- Proper soil temperature – check seed packet – if not listed then 70 degrees would be a good average
    - Tomato (warm season crop): optimal temperature is 85 degrees
    - Spinach (cool season crop): optimal temperature is 70 degrees
- Soil moisture – soil should be moist and not wet
- Oxygen – soil needs to let air in
- Light – most seeds germinate in the dark (which is why we cover the seeds with soil). Seeds that need light will state that on the packet and are sown uncovered
- Good seed to soil contact

Why seeds don't germinate:

- Soil is too wet
- Soil is too dry
- Lack of air – seeds need oxygen and need to expel carbon dioxide
- Seed is planted too deeply
- Dormancy – some seeds need a period of cold (stratification)
- Hard coat – seeds need to be soaked or the seed coat scratched to germinate (scarification)