

Starting Your Garden Indoors

Coppell Environmental Education

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Why Start Seeds Indoors?

- Plant hard-to-find varieties
- Save money
- Beat the winter blues
- Rewarding to grow a plant from seed to harvest
- Long growing season
- Small seeds



What Seeds Are Easiest?

- Zinnias are one of the easiest flowers to grow from seed.
- Begin with easy, reliable seeds:
 - Tomato
 - Pepper
 - Basil
 - Zinnia
 - Marigold



These all germinate readily and grow quickly.

When To Sow Seeds?

- Most seed packets include sowing instructions.
- The goal is to grow seedlings that are the ideal size for transplanting into the garden at the proper time. Sowing dates depend on:
 - **your average last spring frost date;**
 - **whether the plant prefers cool or warm growing conditions;**
 - **how quickly the seed germinates and grows.**
- To calculate your planting date, start by determining your average last spring frost date, mark it on a calendar, and count back in one-week increments.

When Is Last Frost Date in Spring?

- Create a planting calendar by counting back from your last frost date.
- Ask an experienced gardener.
- Contact a local Master Gardener program (part of your state's Cooperative Extension).
- Ask staff at your local garden center.

The date of the actual last spring frost varies from year to year so the "average last spring frost date" is just an approximation, but it gives you a starting point.

March	
Friday	Saturday
2	3 Sow pepper seeds indoors
9	10 Sow tomato seeds indoors

Do I Need Special Grow Lights?

Sunlight in early spring isn't nearly as intense as summer sun, and the days are shorter, too. Plants grown under the consistent, bright fluorescent lights of a grow light will have strong, stocky stems that will adapt better once they're transplanted into the garden.

Keep the lights on 14 to 16 hours a day, a few inches from the tops of the seedlings.



Growing on a windowsill, these sad-looking seedlings are reaching for the light, resulting in long, weak stems.

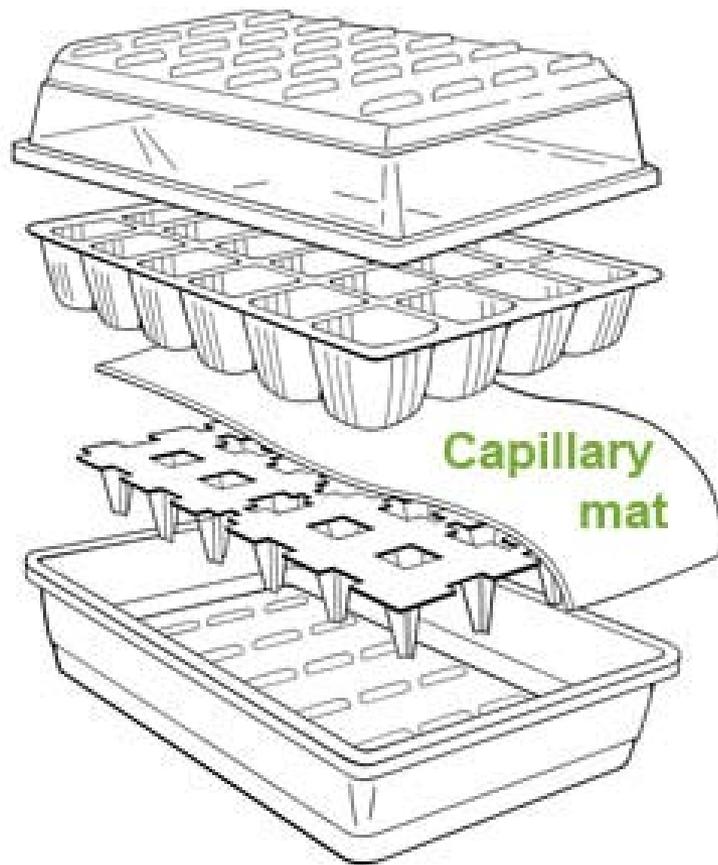
Do I Need Special Soil?

- **Regular potting soil or garden soil**
 - too heavy and dense
 - tends to drain poorly in small seed starting trays
 - can also harbor disease organisms that can damage or kill young seedlings
- **Germination Mix**
 - not really soil at all
 - growing medium comprised of sphagnum peat moss and small amounts of vermiculite and/or perlite
 - helps ensure a consistently moist environment
 - light enough to provide lots of wiggle room for tiny roots
 - sterilized to eliminate bacteria and fungus
- **Transplant Mix**
 - Similar to Germinating Mix, but has more coarse texture
 - Right mix for starting larger seeds such as cucumbers, zinnias and marigolds
 - Right choice to transplant seedlings into larger pots

What Type of Pot Should I Use?

- Seed starting systems are designed for healthy seedling growth.
 - Start lots of seeds in a small space
 - Drain freely to prevent rot
- While you can start seeds in any container that has drainage holes, specially designed seed starting pots and trays provide optimal conditions:
 - Biodegradable pots, like Cowpots or Paper Pots
 - Reusable trays
 - Self-watering, all-in-one seed starting systems

What Type of Pot?



Seed Starting Tray



How Deep Do I Plant Seeds?

- Basil, pepper and zinnia seeds: different sizes, different planting depths.



- Seed packets tell you how deeply to plant.
- A rule of thumb is to sow seeds two or three times as deep as they are wide.

How Do I Water?



- Self-watering seed starters
- Bottom watering is usually preferable
- Top misting keeps the surface moist for better germination

The greenhouse cover holds in moisture, raising the humidity for fast germination. As soon as you see the first tiny sprout, remove the cover. This allows air to circulate around seedlings, minimizing disease problems.



Do I Need To Thin My Seedlings?

- Thin seedlings to one per cell.
- Choose the strongest seedling and remove the others nearby.
- The best way to thin is to snip off extra seedlings at the soil line.



What Went Wrong?

Here are some symptoms, and possible causes:

- **Poor germination**
 - Overly wet or cold soil, which causes seeds to rot.
 - Soil was too dry, the seeds may not have been able to absorb enough moisture to sprout.
 - Soil dried out after they began growing, so the fragile new roots may have died before the shoot even emerged above the soil.
 - Out-dated seed, and seed that hasn't been properly stored.
- **Damping off – seedlings keel over at soil line**
 - Soil-borne fungi attacking the stem
 - Need clean containers and sterile seed starting mix
 - To disinfect used containers, sterilize them in a 10% bleach solution
(1 part bleach to 9 parts water)

What Went Wrong?

- **Mold and algae growth – fuzzy white growth or slimy green patches on surface of planting mix**
 - Seed starting mix is too wet
 - Dry out slightly between waterings
 - Use a small fan in the room to increase air circulation.
- **Pale, stretched-out seedlings with weak stems**
 - Inadequate light, both in intensity and duration
 - Too-warm room temperatures and overcrowding
 - Inadequate fertilizing
- **Discolored leaves – pale green, yellowish green or purple cast**
 - Needs a nutrient boost
 - Begin fertilizing seedlings when they're an inch or two tall, or when they have their second set of true leaves
 - Use a water-soluble fertilizer that's diluted to half-strength, applying weekly for the first few weeks

When is it Time to Transplant Indoors?

- Before the roots get too crowded
- A month after sowing or when seedlings are about 4" tall, gently remove one of the seedlings from its pot. If the roots are beginning to fill the space, then it's time to transplant them into a larger pot.



When is it Time to Transplant Outdoors?

- After the last Spring frost
- As soon as the soil reaches an acceptable temperature.

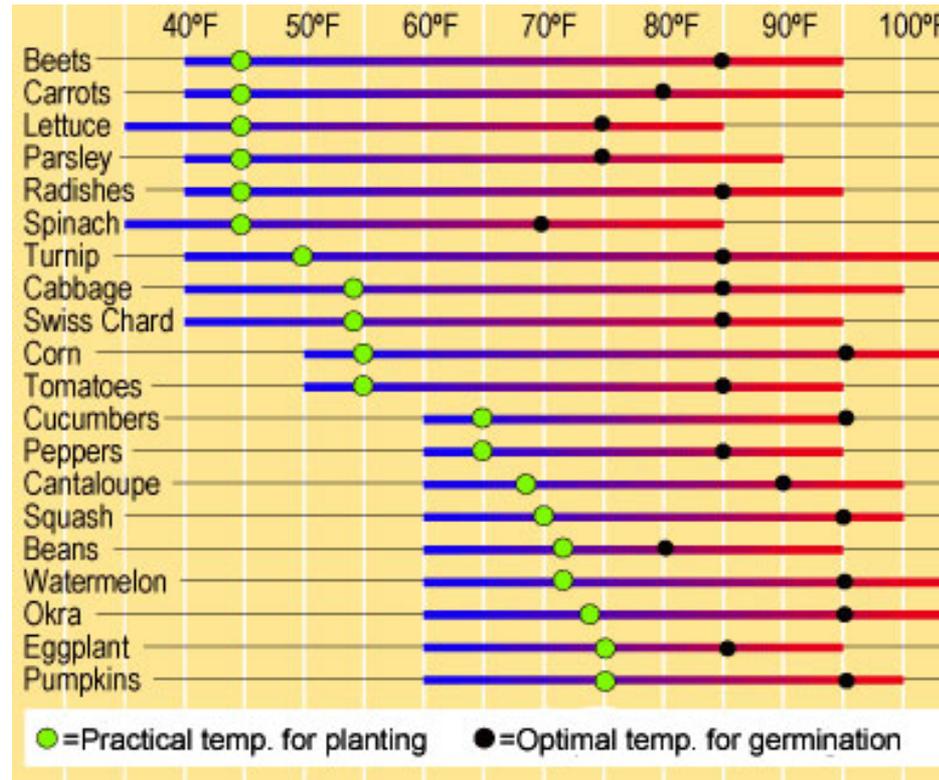


Chart by Dr. Jerry Parsons, Extension Horticulturist at the Texas Agricultural Extension Service

minimum and maximum germination temperature ranges for each vegetable crop

When is it Time to Transplant Outdoors?

- When the first true leaves appear above or between the cotyledon leaves



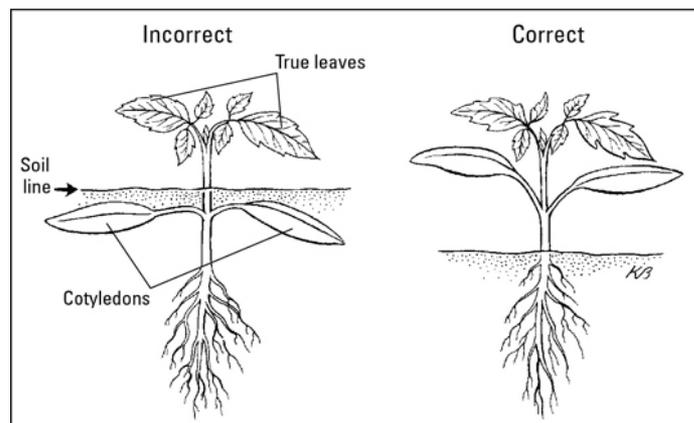
cotyledons or seed leaves are the first leaves the seedling produces

How Do I “Harden Off”?

- Acclimate seedlings to outdoor conditions.
- About a week before you plan to set the seedlings into the garden, start hardening them off.
- Place them in a protected spot outdoors (partly shaded, out of the wind) for a few hours, bringing them in at night.
- Gradually, over the course of a week or 10 days, expose them to more and more sunshine and wind.

How Do I Transplant a Seedling?

- Transplant seedlings on a calm, cloudy day
- To transplant seedlings, follow these steps:
 - 1) Make a hole for each seedling, twice as wide as root ball
 - 2) Unpot a seedling
 - 3) Check the root ball's condition
 - 4) Mix a diluted liquid fertilizer into the soil of the planting hole
 - 5) Put each prepared seedling into the hole
 - 6) Plant seedlings at the correct depth
 - 7) After firming the soil around the roots with your hands, form a shallow soil basin around the base of the transplant to hold water
 - 8) Depending on the conditions, water the bed that day or the next
 - 9) Keep the bed moist while the seedlings get established and begin to grow strongly





Thank you to our Speaker!

Harold Annis
USNR-RET
Master Gardener

