Seedling Nursery on a Budget

Grow your own transplants. Control your season. Cut your costs.

Who is this for

Home growers ready to stop buying transplants and start producing their own. A realistic beginner setup, not a commercial greenhouse.

What you'll get

A complete home nursery setup, a germination reference, a troubleshooting guide, and a hardening-off plan so your transplants survive their first week in the garden.

This seedling stage is where most home gardens are decided that anything grows in the ground. A strong transplant into the soil survives, it sets vine sooner, its first fruit starts producing much earlier, and it keeps growing through the season. A weak one stalls, gets hit by pests or diseases, and never catches up. Starting your own transplants is a budget lever, adapted to a single staff, and it extends a grower's season.

REMEMBER, NOTE: This guide is written for a national audience. Seeding windows vary significantly by region: a starting timeline in February works for South Florida but wrecks seedlings in Minnesota. Look for regional adjustments throughout, or your local planting calendar. Once your USDA Plant Hardiness Zone and a transplant date are set, the rest of the schedule counts backward from that date. Extension offices and local gardening forums are also worth a search, especially for specific varieties. Growing your own means you can choose varieties for taste, storage, or disease resistance that commercial farms rarely carry. Heirloom tomatoes, specialty peppers, and varieties that need to ripen on the vine are common starting points for home growers.

When buying transplants: Look at stem thickness, root ball, and specialty farm inventory. Undersized seedlings, pulled leggedness, thin stems, and stunted vegetables are most factory, grower-grade transplants.

SECTION 1

THE BUDGET SETUP

A home nursery needs three things: a place with light, a place to germinate, and a place to hold the seedlings. Everything else is optional.

Light

Indoor seedlings need artificial light. A south-facing windowsill rarely provides enough for healthy stems. Most windows provide 2-4 hours of usable direct light in winter, which is not enough. Weak seedlings stretch and struggle at transplant.

LIGHT SOURCE	COST	NOTES
Sunny windowsill	Free	Only realistically adequate in southern or south-facing rooms in winter
Full-spectrum LED grow light (2-ft)	$20-$40	Sufficient for most home setups
Full-spectrum LED strip lights (4-ft)	$40-$80	Covers more area, better for trays
T5 fluorescent (4-ft)	$50-$100	Proven and reliable; brightly less efficient than LED but excellent germination light

LIGHT DISTANCE: Hang lights 2-4" above the seedling canopy. Too far = leggy. Raise the fixture as seedlings grow, or lower the tray. Set a $15 timer to run 14-16 hours per day — manual switching is never consistent enough.

Heat

Seeds germinate by soil temperature, not by light. Most vegetables germinate reliably at 70-80°F. Below 60°F, germination stalls—especially for peppers, eggplant, and tomatoes.

A seedling mat (an $80-$400 glorified plate) keeps the tray warm underneath to the single cheapest investment in a home nursery.

Once seedlings sprout, they need cooler air. Hot seedlings in a warm room stretch and weaken. Target 60-70°F for most vegetables.

REMEMBER, NOTE: In South Florida and other warm regions, air conditioning can ship indoor temps below the germination threshold for heat-loving crops. Keep trays away from AC vents during the germination phase.

Containers

Cell size determines root volume, and root volume determines transplant quality. Most beginners use cells that are too small.

CONTAINER	CELL SIZE	STRENGTH	NOTES
72-cell plug tray	Very small	Basil, cherries, onion	Transplant early — roots fill fast
50-cell plug tray	Small	Lettuce, kale, cherry tomato	Standard home seedling container
30-cell tray	Medium	Tomatoes, cucumbers, squash	More volume for fruiting crops
4" pots / 32-cell	Large	Peppers, large tomatoes	Longer grow out, prevents root-binding
Repurposed cups / yogurts	Varies	Any crop	Punch drainage holes; 70 with repurposed cups only

EXPLORE: A very utility size SEEDTEC with adjustable shelves fits on 10-12" true-cost shelf and holds 84 trays at once. Add a second shelf and that's for less than a dollar amortized. Visit the AM USA Supply Guide for farmer-vetted models organized by budget and footprint.

ITEM	UNIT COST	WHERE TO BUY
Seller utility shelf (in box)	$40-$70	Hardware stores, Amazon
Full-spectrum LED grow light (2-ft)	$20-$40	Amazon, garden supply
Seedling mat (medium)	$8-$15	Hardware store
Seedling heat mat (10-20")	$25-$40	Amazon, garden supply
50-72" seedling trays (2-3 pack)	$10-$27	Garden supply, online
Seed starting mix (8 qt bag)	$10-$16	Garden center
Humidity domes (set of 3)	$8-$14	Garden supply
Pre-moistened seedling fertilizer (small bottle)	$6-$14	Garden supply
Spray bottle (1 liter)	$3-$8	Dollar store
TOTAL — starter setup	**~$180-$260**	One time. Trays, mix, and seeds are the only ongoing costs.

CURRENT NOTE: Pricing under 2 budget or tight lights = lower first, heat and second, everything else after. A single shelf, one light, and a spacer of seeds. is a functioning home nursery.

SECTION 2

MEDIA + MOISTURE

Seed Starting Mix = Not Potting Soil

Seed starting mix and potting mix are not interchangeable. Seed starting mix is fine, light, and fast-draining — it lets a fragile root tip push through without resistance. Potting mix is heavier, holds more moisture, and carries clumping of or large fungal debris at the surface in a young seedling.

Moisture Test, Day Two:

- 50% pass: Water now.
- 25% pass: Water in the afternoon.
- 0% pass: Water immediately.
- Optional: Lay a 50% sheet of paper towel over the surface.

Seedlings wilt fast when dry and rot when saturated. Squeeze a handful of a damp mix: it should hold its shape and feel damp but not wet. If it crumbles, add water. If it drips, let dry.

NEVER USE: Garden soil is cold, dense, it compacts, drains poorly, and carries pathogens. Even excellent garden soil produces poor germination results in a cold tray.

Moisture = The Reason Most Home Nurseries Fail

Accumulated moisture is the common cause of late-stage seedling loss. The longer it exists, more it kicks up the odds of root rot, damping-off, and stunted growth.

Bottom Watering — The Farmer Method

Top watering scatters seeds and of pellet, disturbs roots, and keeps the surface wet — damping off's ideal environment. Farmers bottom water trays:

- Place 10-12 seeds into the first cell to prove the mix and germination.
- Pour water into the tray, not the cells. Let the mix wick upward through holes. Wait 10 minutes. Pour off any water that wasn't absorbed.
- Top water only when stemming flush fertilizer = use a spray bottle, not a stream.

CURRENT NOTE: Switching to bottom watering eliminates most damping off. It takes 10 extra seconds per tray and saves entire batches. This is the single most important technique change in home nursery management.

SECTION 3

GERMINATION REFERENCE + TROUBLESHOOTING

Seeds germinate when soil temperature reaches their species' minimum threshold. Below that, they sit in the dark and rot instead of sprouting. Warm soil gets it started fast; cold soil stalls the process.

CROP	SOIL TEMP	DAYS TO GERMINATE	READY TO TRANSPLANT	FLAVOR NOTES
Tomato	70-80°F	5-10 days	6-8 weeks	Sweet, tangy, complex. Long season is key. Cherry tomatoes ripen earlier than slicers.
Pepper	75-85°F	7-14 days	Not needed	Sweet, mild, vegetal. Needs warmth and a long season. Hot varieties develop heat with ripening. Do not refrigerate.
Cucumber	70-85°F	3-7 days	Not needed	Cool, fresh, mild. Prefers a 65 cold or longer — it bolts in heat and rots in disturbance.
Basil	75-85°F	5-10 days	Shallow light	Sweet, peppery, clove or barely clove. Cold = no germination.
Lettuce	60-70°F	2-5 days	Yes — needs light	Surface sow and press in. High lettuce mortality in germination.
Kale/Chard	60-70°F	4-7 days	Not needed	Reliable germination. Mild, vegetal, sweetening after frost. Harvest young for tender leaves, mature for greens.
Arugula	55-60°F	3-6 days	Not needed	Cooler is better. Very forgiving. Flavor gets bitter as it ripens.
Parsley	60-70°F	14-21 days	Not needed	Slow seeds in warm water 24 hours before sowing. Germination is unreliable.
Cilantro	60-70°F	7-10 days	Not needed	Bolts quickly in heat. Sow every 2 weeks for a steady supply. Leaves, seeds, both bolting, germination

REMEMBER, NOTE: Soil temps are 5-8°F cooler than air temps, could measure crops below, arugula, cilantro germinate much faster through February. Warming them in summer produces poor results even indoors. Match your seedling calendar to the season your crop actually grows in.

Soaking depth rule of thumb: Soak for the seed's diameter. Lettuce and basil surface sow and press gently; crop is a pinch or overpack is a mess concentrated in one cell. Tomato seeds are 1-2 mm, peppers are 3-4 mm. Soak for no longer than 24 hours or seeds start rotting in the warm water. Dry on a paper towel until it flows freely.

SYMPTOM	WHAT'S HAPPENING	FIX
Wilt despite soil that looks wet	Root rot killed a root system	Check drainage, lower watering frequency
Stems, cotyledons, or leaves turning yellow	Damping-off, overwatering, or nutrient stress	Bottom water, check drainage, fertilize if stems are yellow
Pale, thin, spindly seedlings	Insufficient light, heat, seedlings	Lower light 2-4" above seedlings, check heat
Leaggedness that stays gangling	Temperature + overfertilizing, not light	Cool the room, stop fertilizing, wait for true leaves
White mold on soil surface	Cold stalling, stagnant air	Move to warmer, drier location; ventilate
Tiny flies around trays	Fungus gnats — overwatering, not pests	Let top dry between waterings; sticky traps help

CURRENT NOTE: Most of crops, so one, it seed diagnosing it failed they usually stems/green first starting fresh. Most vegetable seeds are viable 3-5 years when stored correctly.

SECTION 4

POTTING UP + HARDENING OFF

When and How to Pot Up

Pot up when the first true leaves appear (the second set, after the cotyledons). Wait too long and roots tangle. Transplant carefully and gently.

- Water the tray an hour before potting up — moist soil pulls fuller root systems.
- Lift seedlings by the leaves, not the stem. Crushing the stem kills the plant.
- Bury the seedling only as deep as it sat in the tray. Burying stems invites rot.
- Firm the soil gently around the roots. Air pockets dry out and stall growth.
- Water in gently and place in bright, indirect light for a day or two before full sun.

REMEMBER, NOTE: Skip the hardening step, or allow the seedling time to adjust, and the seedling will wilt or stalk within a few days. Transplant shock is avoidable if it's handled gently.

TRANSPLANT DAY: Transplant into the evening or on an overcast day. Water the nursery container the day before so the soil leaves transplant intact. Water the new bed lightly the morning of. Shade the transplants for the first 2-3 days if the sun is strong. Check for wilt in the morning. Stem is firm and upright = success. Leaves droop = shade more and water lightly.

SECTION 5

MICROGREENS — HARVEST IN 7-14 DAYS

Microgreens are young seedlings harvested at the first true leaf stage — 7 to 14 days after sowing, depending on the crop. They sprout fast, they are tender, they are high-value, and they need almost no space. They are a fast cash crop and a low-risk way to test a market before committing to a full season.

What Microgreens Are

Microgreens are harvested stem, seedlings cut below the first true leaf stage — 7 to 14 days after sowing, depending on the crop. They sprout fast, they are tender, they are high-value, and they need almost no space. They are a fast cash crop and a low-risk way to test a market before committing to a full season.

What You Need

- Trays (bottom: seedling tray 10x20 inches; top: 1020 Cells Cookie Sheet Liners)
- Seed starting mix or coco coir, 1/4" deep, 1-2 deep
- Water, light misting, and a spray bottle for the first few days of germination
- Sunny spot or a simple grow light, whether direct sunlight from the kitchen window or a $20 full-spectrum LED
- Scissors, knife, and a cutting board for harvesting

SEED DENSITY: Microgreens are dense. Cover the tray completely with the seed, but not so thick that it mounds. Overcrowding causes mold. Underseeding causes weak, thin growth. The goal: even coverage, one seed deep.

CROP	DAYS TO HARVEST	DIFFICULTY	FLAVOR NOTES
Sunflower	8-12 days	Easy	Crunchy, nutty flavor. Soak seeds 8 to 12 hours before sowing. Harvest before the first true leaf. Best for kids to pick.
Radish	6-8 days	Easy	Fastest on this list. Spicy, sharp crop. Reliable for first-time growers. Harvest at 6 days.
Pea shoots	10-14 days	Easy	Sweet, tender, mild flavor. Sweet and tender. Best crop for children — fills the whole tray.
Broccoli/Brassica mix	7-10 days	Easy	High in sulforaphane. Mild flavor, dense texture. Reliable and fast.
Arugula	7-9 days	Easy	Peppery/bitter when cut — wave dry, don't rinse heavily after sowing. Strong peppery flavor.
Basil	10-14 days	Moderate	Needs warmth (70°F+). Microgreens like arugula — bolton cutter only. Intense aromatic flavor.
Cilantro	12-16 days	Moderate	Crush seed hull before sowing. Slower and less dense than brassicas. Worth a few rows.

The Microgreen Growing Cycle

- Day 1-3 (Soak): Pre-soak seeds. Day 1: Fill trays, Day 2: Sow seeds evenly and lightly. Place the empty tray on top as a weight and cover with a humidity dome or plastic wrap.
- Day 4-5 (Germination): Remove the dome. Mist lightly. Place under grow lights or near a bright window. Water from below if possible.
- Day 6-7 (Growth): Thin if needed. Water as the soil dries out. Move under grow lights or to a bright window. Begin bottom watering (soak tray, drain).
- Day 8-14 (Harvest): Cut at the base with scissors. Rinse gently. Dry on a towel. Refrigerate in a sealed container for up to 5 days.
- Reuse: Cut, wash, sanitize, and reuse the same trays for the next batch. Plastic trays last for years with proper care.

QUESTION FOR YOU: Are you trying to sell, feed your family, or both? Sell: Focus on one crop, one variety, one size, and one seed starting mix — and find ready to sell. Feed family: Sow in staggered batches every 2 days so you have a steady harvest rather than one big batch.

SECTION 6

YOUR SEEDLING CALENDAR

Count backward from your target transplant date. Every crop has an ideal nursery duration — too short and the seedling isn't ready, too long and it becomes root-bound and stressed.

CROP	SEEDING WINDOW	TRANSPLANT WINDOW	POT SIZE	TRANSP. NOTES
Cherry tomato	6-8 weeks	6-10" x 6-8 tall	Tall	Start 8 weeks before your transplant date.
Pepper	8-10 weeks	6-8" Thick stem	Tall	Slower crop. Start 10 weeks out.
Cucumber	3-4 weeks	Short, 2-3 true leaves	Only if delayed	Direct sow when possible. Hates root disturbance.
Kale/Chard	4-6 weeks	3-4" Sturdy, 4 true leaves	Tall	Hardy and lingering. Good first crop to start.
Basil	3-4 weeks	3-4 true leaves	Tall	Pinch for bushiness. Dangerous to overwater.
Leaf	6-8 weeks	3 sets true leaves, pinched	Shallow	Pinch growing tip at week 3 to encourage branching.
Parsley	6-8 weeks	4-5 true leaves	Tall	Soak seed 24 hrs first. Patience required.

REMEMBER, NOTE: Windows, transplant dates, and harvest dates are regional. Use your local frost date, your growing season, and your last spring frost. Extension offices, local gardening forums, and Farmer's Almanac are good starting points.

SECTION 7

SEEDLING SHARE + MY NURSERY LOG

A single 72-cell tray produces 72 seedlings. Most home growers don't need that much. The tray can be composted, gifted, or shared — and shared seedlings build the kind of neighborhood relationship that makes food systems work.

- Count your total seedlings. Decide how many you want to keep and choose the winner of seedlings this.
- Seedling share rule: 1 = a single person, 2 = neighbors trading, 3 = a small exchange, 4 = a community seed library. Each step needed a table and a spot.
- Leave a seedling tray at school or a community garden, library, or church. Three seedlings from seven nearby lunch lovers. Make no.?

My nursery log

- Track seeds that sprouted
- Track transplant survival
- Seedlings shared with neighbors
- Crops lost to root rot, damping off, or pests

My micrograen log

- Track seeds that sprouted
- Track harvest dates
- Track harvest yields
- Grower's or seed supplier

Get the full seed calendar, a printable seedling log, and a micrograen log at seedgrowers.com/home-nursery-calendar.

AM USA Field Guides help home growers grow like farmers, using simple systems that build food security, skills, and neighborhood connection.

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