

Growing Your Veggie Garden from Seeds

By Christine Lampe, Riverside County Master Gardeners

Starting Seeds

- Why?
 - much cheaper than buying transplants
 - more selection of varieties, often only way to get rare ones
 - Less problems of importing disease with plant or soil
 - Sense of accomplishment, excitement
 - Kids love seeing seeds sprout
- Use fresh seeds – better results.

When to Start Seeds -- Cool Season vs Warm Season

- Cool season plants (plant late summer for fall harvest & mid-winter for early spring)
 - Beets, Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Celery, Chard, Cilantro, Leeks, Lettuce, Onions, Spinach, Peas, Potatoes
 - Start indoors in mid-summer, calculate back from average 1st frost date.
- Warm season plants (start planting early Spring, in mid-winter if started indoors)
 - Basil, Beans, Corn, Cucumbers, Eggplant, Melons, Okra, Peppers, Pumpkins, Squash (winter & summer), Sweet Potatoes, Sunflowers, Tomatoes
 - Start indoors in mid-winter, calculate back from average last frost date.
- Year Round
 - Carrots, Radish
- Knowing 1st and last frost dates:
 - <http://ucanr.org/sites/gardenweb/files/29030.pdf>
 - Farmer's Almanac – zip code: <https://www.almanac.com/gardening/planting-calendar>

Some Favorite Places to Get Seeds

- Seed trading groups (Facebook, local gardening clubs, friends)
- Renee's Garden, Felton, CA , <https://www.reneesgarden.com/>
- Baker Creek, <https://www.rareseeds.com>
- Seeds of Change, Rancho Dominguez, CA, <https://www.seedsofchange.com/>
- Botanical Interests, Broomfield, CO 80020, <https://www.botanicalinterests.com/>
- Native Seed/SEARCH, <https://www.nativeseeds.org/>

Seed Flats vs. Direct into Ground

Seed flats	Direct into Ground
Take up less space	Less work, no transplanting
Better germination rates	Get plenty of light
Efficient – put in plants that have germinated, and aren't duds	Less trouble with fungus and mold
Head start over planting outdoors	Some plants do not transplant well (i.e. peas, squash, carrots)
Can start next crop while previous crop finishes	
Uses less water, easier to water	
Easier to monitor	
Easier to protect (temperature, critters)	

Construct seed flats

- Can make from scrap wood – used wood from wood pallets
- 3” deep (deeper flats for large seeds 6”)
- 1/8” gap between slats on bottom for drainage
- Half-flat size – 14” x 11.5”

Inexpensive improvised seed flats/containers

- Milk cartons cut in half
 - Punch holes in bottom for draining
 - Fill with potting mix, sow seeds.
 - Put top half back on for moisture conservation
 - Negative: lets light into roots. Some plants don’t like that.
- Biodegradable pots
 - paper towel tubes or toilet paper tubes, cut to 3” lengths
 - place in tray, touching so don’t fall over
 - fill with soil, sow seeds
 - transplant to ground inside paper tube – be sure to bury tube completely
 - egg cartons – remove top, tear holes in bottom of each cup
 - tear apart to plant
 - eggshells – good for tomato, peppers, eggplants. Crush slightly when planting
- Clam shells – plastic containers from store
 - Usually have holes in bottom already for draining
 - Fill with potting mix, sow seeds.
 - Put top half back on for moisture conservation

Soil for the seed flat

- Easiest & cheapest: 1-part sifted compost and 1-part soil
 - Sift compost through ½ inch or ¼ inch wire
 - Can have problems with organisms that cause damping off
- Better: Commercial potting mix with vermiculite, compost, peat (better yet coconut fiber, aka coir), & garden soil.
 - Sterile – less problems with damping off (sterilizing procedure below)
- Fill flat to top for the most depth for seeds to grow

Simple Tools

- Pencil – for poking holes, pushing seeds into holes, tamp with eraser
- Fork – roughing up soil, or digging bigger holes for transplanting
- Ruler or straightedge – for making rows into seed flat soil

Preparing Seeds to be Sown

- Pre-soaking – soak at least 1 hour, in chamomile tea (helps prevent damping off), also seaweed extract is helpful (strengthens seedlings)
 - Tiny seeds clump together when wet, so pre-soaking can make them very hard to handle. Avoid this by soaking them for a while and then drying them on paper towels before planting.
- Hard coated seeds (peas, beans) – soak overnight
- Scarification – nick the seeds with nail file (morning glories, four o’clocks, lupines)
- Stratification – cold then warm. Simulates winter. (Strawberry seeds)
- Label them (etch name on squares of cut up soda can aluminum)

Sowing Seeds

- Depth – see packet. General rule, plant seed at depth double its thickness
 - Very small seeds – scatter or place on top of soil and dust with fine soil.
 - No covering – some seeds need light to germinate and should not be covered at all (strawberries)
- Spacing – see packet. Small seeds – generally 1 inch apart. Large seeds (large beans, pumpkin, etc) – 2 inches apart.

Planting direct into soil

- Make sure soil is loose and well aerated. Add lots of compost.
- To plant dozens of lightweight seeds in a snap, cut string the length of the row and wet thoroughly. Then sprinkle the seed directly onto the string. The moisture will make the seeds stick to the string long enough to place the string in the furrow. Cover with soil and you are done.
- Cover seeds when sowing; use a paint brush to gently cover them with soil. Prevents you from sowing too deep and over packing the soil.

Germinating

- Most seeds need dark conditions (covered with soil), heat, water, air
- Read packet for specific directions.
- No fertilizers needed – seeds have enough nutrients stored.
- Majority of seeds – best at temp. between 60-75 degrees.
 - Heating mats
 - On top of the fridge or old tv
 - Old waterbed heater
- Keep evenly moist

Protecting the Planted Seed Flat

- Protection from weather
 - Greenhouse or indoors by a window during cold
 - Hot weather – under shade netting
- Protection from critters, birds, cats – flat cover – screen frame, window screens

Watering

- Be gentle – don't disturb the seeds
- Misting with spray bottle or gentle sprinkles from watering can.
- Downwater (soak seed flat from the bottom)
- Gentle watering with spray nozzle on hose – water up, let fall like rain, water approx. 10 feet away.
- Use warm water that has been left to sit out 1 hour – dissipates the chlorine, and cold water stresses the seedling leaving them vulnerable to disease
- Keep evenly moist

Light

- Need up to 16 hours of light a day.
- Artificial light if needed – regular fluorescent lights much cheaper than grow lights. Not much difference in results. Two bulbs: one daylight, one cool light.
- Keep seedlings close to the light – within 2 inches, adjusting as they grow.
- In box with aluminum foil to reflect light.

Seeds don't Sprout – Possible problems

- Redwood compost used – redwood contains germination inhibitors
- Too early or too late in season – seeds are sensitive to temperature and day length
- Weed killers in soil (from use on lawn)
- Old seeds – some seeds are good for only one year
- Soil is too wet – wet soil keeps out the oxygen. Seed sprouts need equal amounts of water and oxygen to the roots.

Damping Off Disease

- Caused by fungus parasites - enter new seedlings where the stem meets the soil
- Symptoms: droopy leaves, stem turns black at the base, plant withers and dies quickly
- Can use sterile seed starting soil – mix with vermiculite and perlite
- Sterilize homemade soil/compost mixture by baking a moistened soil-filled, foil-covered seed flat at 200 degrees until the soil temp reaches 180 degrees (took about 4 hours in my oven). Bake for 30 minutes at between 180 and 200 degrees. (NOTE: baking dirt stinks!) Warning – do not let the temperature of the soil go over 200 degrees (creates toxins).

Chamomile Spray:

- Dilute chamomile tea is an excellent preventative for damping off
- Use on seed starting soil, seedlings and in any humid planting area.
- Contains sulfur which is a fungus fighter.
- Also use as a seed soak prior to planting.
- To make: Pour 2 cups boiling water over 1/4 cup chamomile blossoms (or one tea bag). Let steep until cool and strain into a spray bottle. Use as needed. This keeps for about a week before going rancid.

Pricking out

- Moving seedlings up to a larger flat, or small pots
- Seedlings ready for pricking out when first true leaves appear (not seed leaves)
- Plant a little deeper, even right up to the true leaves (esp. lettuce, cabbage family, tomatoes). Don't bury the growing tip.

Transplanting

- Hardening off – outside for few hours, little by little, give less protection
- Planting in the ground
 - Well hydrated – best time is late afternoon, gives more recovery time
 - Handle as little as possible
 - Gently spread roots out in all directions (loosen up from root ball)
 - In general, bury up to the first set of true leaves
 - Make sure upper roots are all covered – water in – don't tamp

Resources

- Riverside Co. Master Gardener Hotline - 951-683-6491 (Ext. 0), M-F, 9am to noon
- The California Garden Web (lots of basic info): <https://ucanr.edu/sites/gardenweb/>
- Vegetable Gardening at a Glance: <https://ucanr.edu/sites/gardenweb/files/29040.pdf>
- Grow Your Own Vegetables – It's Worth it! <https://ucanr.edu/sites/sacmg/files/74897.pdf>
- Sunset Western Garden Book (cheaper at big box stores)
- How to Grow More Vegetables [& Fruits, Nuts, Berries, Grains, & Other Crops] Than You Ever Thought Possible on Less Land than You Can Imagine, 8th ed., by John Jeavons, 2012