

Green Spaces, Small Places

Vegetable Container Gardening

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Unless otherwise stated, all photos
courtesy of Canva or TJGarman



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"The Mission of the UC Master Gardener Program is to extend research based knowledge and information on home horticulture, pest management, and sustainable landscape practices to the residents of California and be guided by our core values and strategic initiatives."





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The short survey provides us the tools we need to grow and improve the quality of our program. We do not sell or share your contact info with anyone else.



By answering the email survey, your help us demonstrate the impact of our classes and we will continue to receive funding from UCANR and other sources.



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Inspect your Citrus!

- Asian Citrus Psyllid (Insect)
- HLB (Disease)
- If your tree gets this disease it will die in 3-5 years
- There is no cure
- Inspect your trees for the insect and its nymphs shown on the right.
- If detected, spray your trees
- Do not treat trees when bees are active
- Control ants in your trees
- Visit CaliforniaCitrusThreat.org
- Visit ipm.ucanr.edu



New Invasive *Aedes* Mosquitoes

Aedes aegypti and *Aedes albopictus* are urban mosquitoes that feed on humans.

- They are aggressive **day-biters** found both indoors & outdoors that spread diseases including Zika, Chikungunya, and Dengue.

Both *Aedes* species lay eggs in water holding containers as small as a bottle cap.

- Eggs can survive more than **12 months** in dry conditions!
- They detect where water has collected before and **lay eggs there to wait for water.**



Ways to prevent and control *Aedes* mosquitoes:

- **Eliminate standing water:** Regularly inspect for standing water and eliminate it.
- **Block yard drains:** Cover or block yard drains between May and October.
- **Replace landscape:** Replace your landscape with California native plants to keep mosquitoes away.
- **Scrub containers:** Scrub containers that have been left outside with warm soapy water and a brush before throwing them away or storing them in a dry place.

For more information go to <https://vcrma.org/invasive-aedes-mosquitoes> or the front page of our website



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What We'll Cover Today

- Selecting appropriate containers and plants
- Master planting, watering, feeding
- Arranging your containers
- Solve common problems



Benefits



Small Spaces



Accessible



Fewer Issues



Tools



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Challenges



Watering



Soil - Sun - Food



Limitations



Clutter



Choosing a Container

- Sufficient volume and depth for the type of plants you choose.
- Make sure your container has drainage holes and add some if not enough.
- If your pot is large, place it where you want it (or put it on wheels) before filling it with potting mix.
- To prevent damage, place a saucer (filled with sand) underneath to catch the extra water.



What to Plant



- Most vegetables and herbs thrive in containers.
- Tomatoes, peppers, lettuce, and herbs are top performers in containers.
- Dwarf citrus and other fruit trees are successful.
- Remember - similar light, water, and temperature requirements.
- Plants that spread aggressively from roots – good for containers.



What Size Container



- Container size is determined by the diameter and height (in inches) or volume (in gallons).
- Match container size to plant size, both the top growth and root system.
- Don't squeeze large plants (or too many plants) into a container.
- Allow enough space for roots at maturity – both root depth (vertical) and spread (horizontal).
- A deeper container is generally better than a wider container.



How Many Per Container



8" Pot

1 lettuce, spinach, kale, bean, sage, oregano, or mint

3 basil, cilantro, or parsley plants



10" Pot

1 pepper, determinate tomato, or cucumber plant

8 to 12 green onions, beets, radishes, or carrots



12" Pot

1 indeterminate tomato plant, summer squash, or 2 peppers

6 pea or bush bean plants



18" or 1" Sq.

1 tomato or pepper plus 3 or 4 cilantro, basil, or parsley plants

2 summer squash, 4 cucumber plants, or 4 to 6 lettuce plants



Raised Beds: The Big Container



- A raised bed is a large, open-bottomed container.
- Typical sizes: 4' x 4', 4' x 8', or custom. Recommended depth: 12"–18".
- Warms up faster in spring.
- Ergonomic – elevated beds reduce bending.
- Better soil control – fill with high-quality mix.
- 1/3 peat moss/coco coir/native soil, 1/3 vermiculite, 1/3 blended compost.
- Fewer weeds and pests; easier to add row covers.

Growing Herbs



Full Sun

Full Sun (6+ hrs): rosemary, thyme, oregano, sage, chives, fennel.



Partial Shade

Partial Shade (3–4 hrs): Basil, mint, parsley, lemon balm, cilantro, dill.



Grouping Tips

- Group by water needs
- Harvest regularly to promote growth
- Use terracotta or unglazed clay pots for good drainage



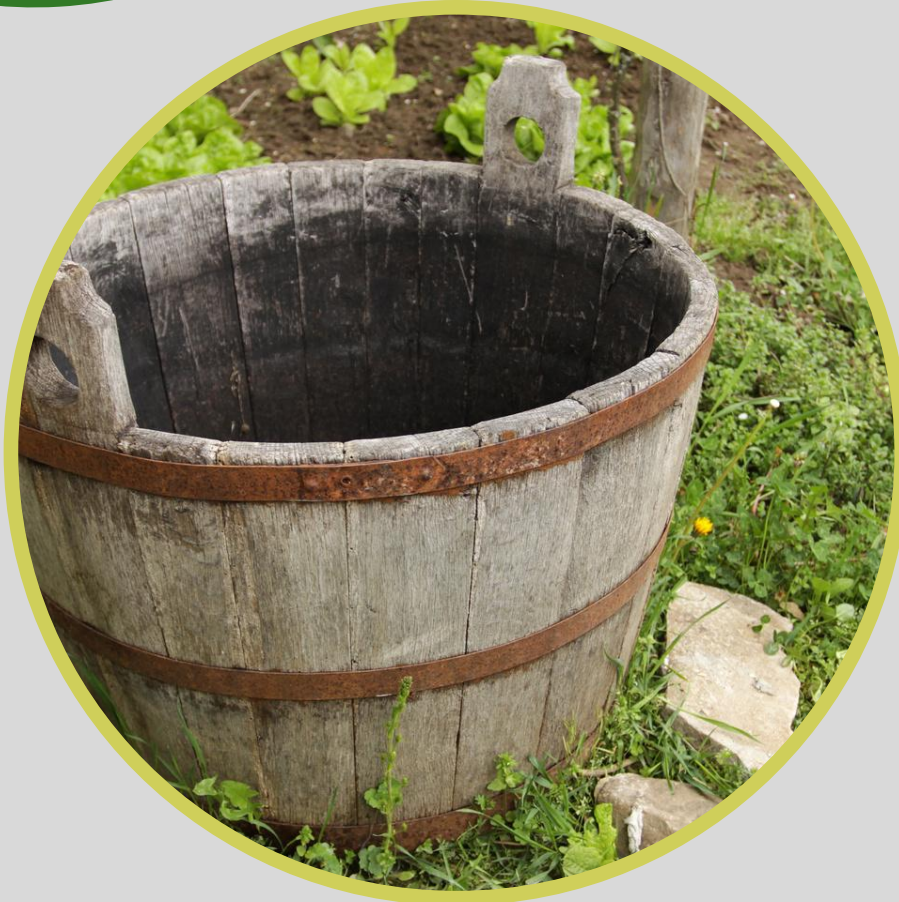
Design Tip



- **Thrill** - a tall vegetable like tomato, pepper, or trellis-trained cucumber in the center or back.
- **Fill** – compact herbs like basil, parsley, or cilantro.
- **Spill** – trailing edibles like nasturtium, thyme, or cherry tomatoes spill over the edge.
- **Keep in mind:**
 - Create a visually appealing and balanced container.
 - Ensure plants have similar needs.
 - Avoid overcrowding.



Container Material



Wood

Porous – good for large plants, select durable wood.



Clay - Terracotta

Porous – allows for aeration but requires frequent watering.



Plastic & Fiberglass

Non-Porous – maintain temperature and water, light weight.



Metal

Non-Porous – retain heat, more watering, can rust.

Dark Colored Containers – create higher temperatures



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Container Shapes



- Square, rectangular, or cylindrical containers need less frequent watering than tapered pots.
- Tapered pots have more soil at the top of the pot, where it dries out quickly.
- Vegetables grown in straight-sided containers tend to have healthier, more vigorous root systems.
- In selecting containers, bear in mind that the top 1.5” to 2” should be mulch.



Courtesy of
ces.ncsu.edu



Color & Placement

- Lighter colors reflect light.
- Vibrant colors can add energy and visual interests.
- Textured or patterned container can add depth and visual interest but may clash with plants.
- Generally - solid container colors are better – plants are better anchored in a solid color base.
- Group in odd numbers (3, 5, 7) rather than pairs – it mimics natural plantings.
- Vary height within a grouping – elevate some pots so the collection has a layered, tiered look rather than a flat row.



Potting Mix vs. Potting Soil

- **Potting mix** = soilless (coco coir/peat moss + perlite + compost) — the right choice for every container
- **Potting soil / garden soil / topsoil** = contains actual “dirt” — keep it out of containers



Don't go by the name on the bag – go by what's in it.



Filling Your Container

1. Sanitize container
2. Fill 3/4 with moist mix
3. Form cone, spread roots
4. Fill in, leave 1" headspace for mulch
5. Water thoroughly
6. Mulch on top 1 to 2 inches



The Drainage Myth



The wettest soil is at the bottom.



Gravel moves the wettest soil up in the pot, closer to the roots, which can lead to rot.

- Planting containers must have drainage holes for root aeration.
- “Drainage material” added to containers will only hinder water movement.
- Use good potting mix throughout the container is optimal for plants to thrive.

The Science – the saturated, airless layer at the bottom is known as the perched water table.

Photo by Parker County Texas Master Gardeners.



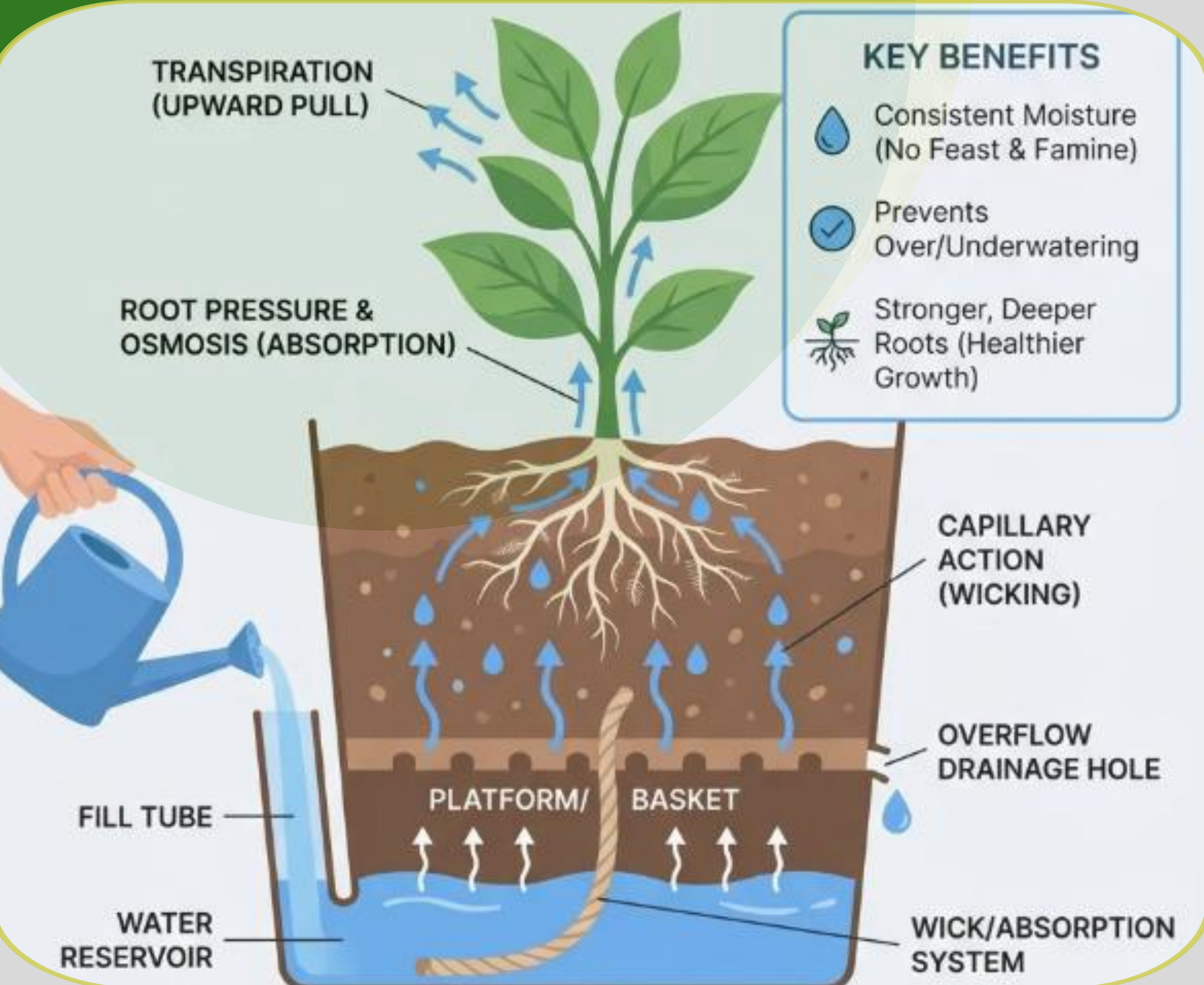
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Watering

- Finger test (2" deep, moist = skip, dry = water) and weight test (lift a corner) as the primary, reliable methods
- Water thoroughly – if dry channels are created - fill with potting mix and water again.
- Avoid wetting leaves
- Mulch to slow water loss
- Note on 2 prong moisture meters: useful, but salts from fertilizer/tap water can cause false "moist" readings.



Self Watering Containers

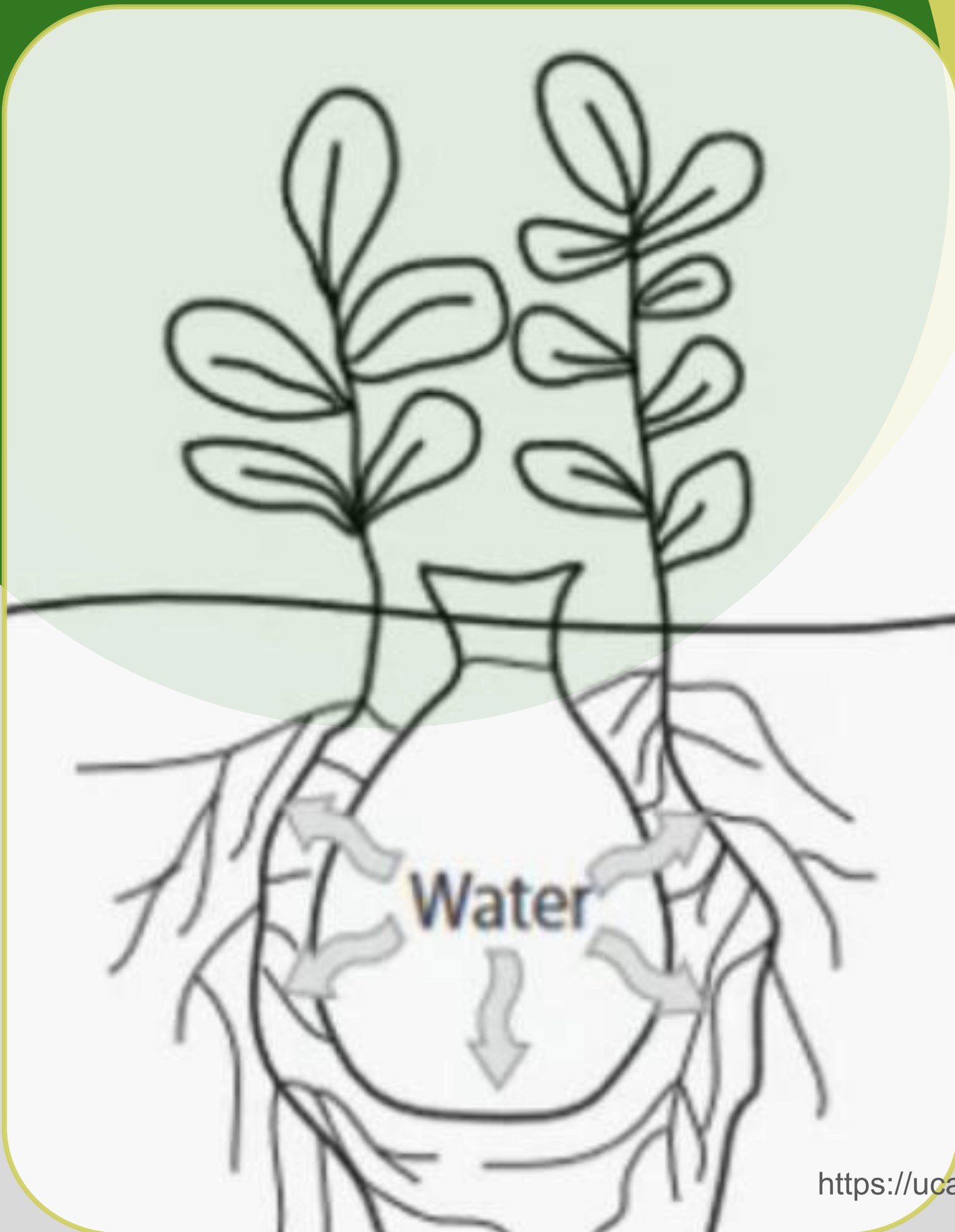


- Two chambers — growing mix on top, water reservoir below, connected by a wicking column.
- Water moves up only as the soil dries — the plant regulates its own supply.
- Great for tomatoes, peppers, travelers, and inconsistent waterers.
- Reduces watering to every 3–5 days in summer.



Ollas – Ancient Watering Method

- Unglazed terracotta vessel buried in the soil, neck above ground
- Microporous walls release water at the rate roots actually need it
- Refill every few days in summer heat
- Cap the neck between fillings – standing water invites mosquitoes



<https://ucanr.edu/blog/coastal-gardener/article/olla-irrigation>



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Ventura Water



- Most Ventura County tap water is alkaline (pH 7.5 - 8.2), which raises soil pH over time
- Warning signs (iron deficiency): yellow leaves with green veins (interveinal chlorosis), stunted new growth, reduced flowering, or white crust on the pot or soil surface
- Fix: once a month, run extra water through the container until it drains freely for several minutes
- Alternate Fix: Fertilizers labeled for azaleas, or blueberries are formulated to be acidic and can help counteract this over time. This works gradually (weeks, not days) — so not a quick fix.

Ideal pH Reference: Vegetables 6.0-6.8, most Herbs and most flowers 6.0-7.0, Acid-loving Flowers (azaleas) and Vegetables (lavender, blueberries) 5.0-6.5.



Pot Bound Plants

A root that reaches the wall doesn't stop growing

Why It Can Kill the Plant

- Circling roots can girdle themselves and literally strangling their own water and nutrient flow
- Left unaddressed, especially after transplanting into the ground or a larger pot, the roots often keep circling in their original shape rather than growing outward

How to Fix It

- Root pruning: cut 1–2 inches off the bottom and score about 1 inch off each side
- Remove any circling, girdling, brown, or mushy roots.



Courtesy of UCANR



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Fertilizing Container Plants



Water Soluble

Fast, needs frequent reapplication – highest maintenance and may be more costly



Granular

Scratch in every 3-4 weeks – medium maintenance



Slow Release

lasts 3-6 months, good for forgetful feeders – lowest maintenance



Soil Management

When should I replace to soil in a container?

Decision 1 - Reuse As-Is

- Plants were healthy last season
- No disease observed
- Top-dress with 1–2" compost
- Add slow-release fertilizer at planting

Decision 2 - Refresh

- Soil compacted but plants were healthy
- Remove top 2", loosen remainder
- Refill with fresh mix + compost
- Good for perennials in large containers

Decision 3 - Full Replace

- Any disease, or significant pest
- White salt crust on soil or walls
- Water beads on surface (hydrophobic)
- Discard in yard waste – do not reuse



Container Gardening For Everyone

- Comfortable working height: 24–30" for standing or seated gardeners
- Lightweight materials (fabric grow bags, resin) cut down on weight (lifting) when empty
- Wheeled dollies let you reposition heavy pots without lifting
- Window boxes and railing planters work from a standing or seated position



Helpful Accessories

- Trellis – make it possible to grow vining plants.
- Hangers – transforms any surface into a vertical garden.
- Netting and Shade Cloths – protects plants from birds, insects, other critters – and too much sun.
- Wheels- make pots movable.
- Saucer – catches excess water.
- Feet – elevates container for better drainage.
- Watering cans, systems, meter – help ensure plants are adequately watered.



Courtesy of
Amazon.com



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Key Takeaways

1. Pick plants your family will enjoy
2. Match soil, light, and water needs when combining plants
3. Choose containers that are the right size and material
4. Use potting mix, not garden soil, and keep it healthy
5. Enjoy your garden year-round

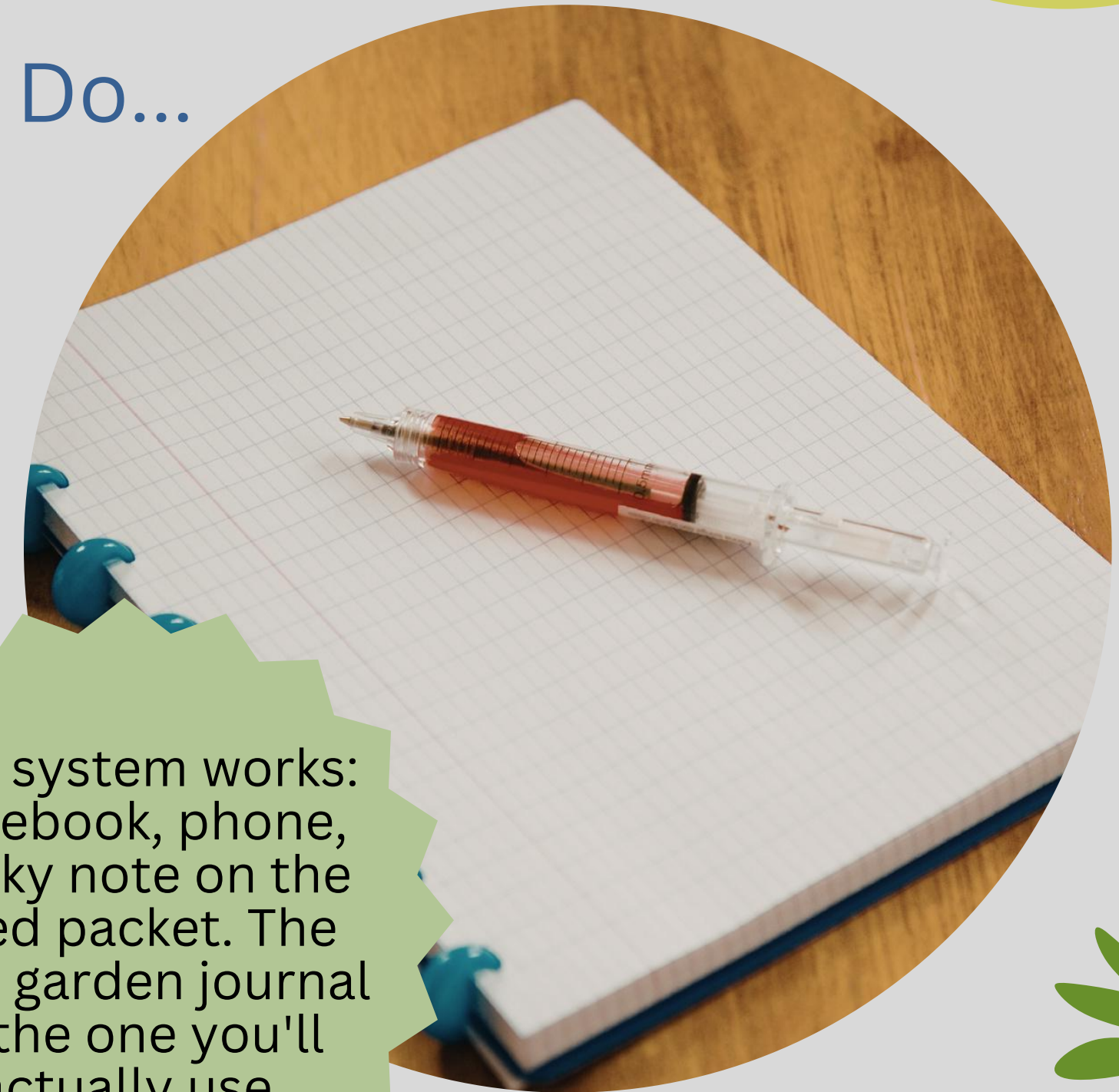


Keep a Garden Record

Your Garden has a Better Memory Than You Do...

- “How did your plants do last year?” — your notes know.
- “Did this plant drop its leaves last summer?” — your notes know.
- “What variety did best in which container?” — your notes know.
- “When did I harvest?” — your notes know.

Any system works: notebook, phone, sticky note on the seed packet. The best garden journal is the one you'll actually use.



Resources

Links:

- [https://ucanr.edu/sites/soils/Soils for Homes - Gardens/](https://ucanr.edu/sites/soils/Soils%20for%20Homes%20-%20Gardens/)
- <https://ucanr.edu/site/uc-master-gardeners-santa-clara-county/container-gardening-basics>
- <https://ucanr.edu/blog/stanislaus-sprout/article/adding-gravel-your-planting-container-does-not-improve-drainage>
- <https://ucanr.edu/site/uc-marin-master-gardeners/containers>
- <https://www.epicgardening.com/soil-calculator-fill-containers/>
- <https://www.grow-it-organically.com/containers-for-container-gardening.html>
- <https://earthbox.com/blog/what-is-the-best-soil-for-container-gardening>

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We have answers!**

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Email: mgventura@ucanr.edu



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