Container Gardening Workshop: South Coast Research and Extension Center

Ellen Zagory UC Davis Arboretum October 1, 2011

Visitors to the UC Davis Arboretum Terrace Garden are consistently taken by the garden's impressive container plantings. This training is intended to give you an overview of the most important things to think about when considering container gardening and how to best achieve success.

I. Why garden in containers: the Pros and Cons.

Pros

Containers are an excellent introduction to growing plants for beginners--any scale is possible.

Allows you to put plants in spots where it would otherwise be impossible (balconies, decks, walkways, etc.)

You can move them around to the best growing conditions and with the sun depending on the time of year

Add color spots in the landscape when other plants are dormant or not blooming.

Cons

Plants require less maintenance in the ground. Their roots have a much bigger area from which to acquire water.

Plants need fertilization for good bloom and growth.

More easily damaged or destroyed if you get busy, go on vacation or are working a lot.

II. What constitutes container gardening

Any plant in any kind of container. Examples of container types and materials – your creativity and amount of time to water are the only limits. (wire baskets, branches, old pieces of pipe, tires, concrete, tree trunks, barrels, bathtubs). The most common type is a pot of clay or plastic.

Material	Water availability	Weight	root conditions
clay	dries rapidly	heavy	cools roots
wood	stays moist longer	mod. heavy	cool
metal	"	light	heats roots
paper	dries rapidly	light	cools roots
glazed clay	moist longer	heavy	cool
plastic	moist longer	light	cool

III. The Basics (a few basic principles that should be observed)

1. Containers must have a drainage hole. If water does not drain the water logged soil will rot the roots.
2. You must use a good commercial potting soil (also called container mix) – not just any soil from the yard. Natural soil contains insects, plant pathogens, and weed seeds and will shrink and swell causing channels where the water will run around the roots rather than penetrate the root ball. This can kill your plants when they dry out.

What makes a good container mix?
It should be weed and disease free (many mixes are "soil-less" or are "pasteurized").
And should have good moisture holding capacity and at the same time sufficient porosity (air filled spaces) to allow air circulation.
Low in salts while adding adequate nutrition
Heavy enough to not blow over with a stiff wind.

Typical container soils are a mix of various materials: sand, peat moss, redwood compost, perlite, vermiculite. Other potential components coir, fiberglass, rice hulls are being examined because peat is a non-renewable resource. A soil mix can be altered for special needs. Cacti and other desert plants prefer fast draining, less moisture holding materials. Add sand or other material to the mix. Plants like ferns like constant moisture and you may want to add peat or other organic material.

A container soil acts as a reservoir for water for the plant while still containing plenty of air so the roots can exchange oxygen and have good drainage. Think of a bowl of cornflakes vs. a bowl of flour. The technical terms are "air-filled porosity" and "water holding capacity".

Two forces are at work in the container soil, gravimetric (e.g. gravity) and matric (the pull of the particles on water). A fine particle size will create smaller air spaces and large particle size large air spaces. Container soils are different from landscape soils in that a "zone of saturation" forms at the bottom of the soil and with **small particles the zone will be taller** (taking a greater percent of the total volume) than with large particles. The height of the container does not affect the height of the zone of saturation. This zone will be filled with water and have little oxygen just after you water your pot. Using gravel or rock at the bottom of a pot merely raises up the saturated zone, effectively making the pot "smaller".

IV. Watering

How much do I water my container plants? Always water until you see the water drain from the hole in the bottom. Considerations of "hard" water: "hardness" refers to the calcium and magnesium which is substantial in California areas with underground water sources (vs. rivers, from snow melt and rain). Also some water contains chloride, sodium and boron. Salts can build up in containers and need to be <u>leached,</u> or flushed out of the bottom of the pot. Applying adequate water until you see it drain from the base will leach out the salts.

How frequently do I water? This will depend on a number of factors

1. Type of plant and how it was potted (e.g. size of root ball vs. size of top)
2. Temperature and humidity
3. wind
4. sun or shade
5. time of year, state of plant

When to water in hot weather in a clay pot might require up to 2x / day while in the winter it may only need irrigation between rains.

Particularly with house plants there are some tricks to knowing when to water

1. Lift the pot and feel the weight (with small pots) it will be lighter when dry
2. Feel the soil with the tip of your finger. Is it dark? Moist?

V. Considerations when planting containers

1. Match the old soil level of the plant to the new (if you pot too high – will dry out roots, too low will rot the crown of the plant)
2. Don't fill the container all the way to the top. Leave a space (usually around 1") for water to cover the entire soil surface to insure even distribution and wetting of the entire root ball.
3. Just like planting in the ground, remove circling, knotted roots, if there is a dense root mass score the sides if the root ball.
4. prune tops to equal the amount of roots pruned (balance supply and demand)

VI. Selecting plants for containers

If you are a beginner and are designing and decorating – best to use hardy, drought tolerant plants

Containers are convenient for controlling more invasive plants (*Juncus pallidus, Arctotheca calendula, Oenothera berlandieri*)

Dwarf fruit trees, herbs can be container grown on decks and balconies

Containers are useful for specimen plants for accent.

VII. Considering color schemes and design in mixed container plantings.

Traditionally combine plants for a range of textures and forms in each container with a key color accented by hues and shades. Try not to ignore the color wheel. In general the recommendation is to have at least one tall, one mid-size and one trailing plant in a mixed container. ("Thrillers, fillers and spillers" according the HGTV folks) This really depends on your goal and what you want it to look like.

http://gardening.about.com/od/containergardening/a/ContainerPlants.htm
http://www.thegardenhelper.com/planters.html
http://www.garden.ie/easycare.aspx?id=611