

# San Joaquin UC Master Gardeners

209-953-6112



## GROWING VEGETABLES IN CONTAINERS

### From the Los Angeles Master Gardener Program

There are 7 major considerations in container gardening:

#### **1. How much sun is available?**

Choose plants according to how much sun or shade they'll get each day. Most vegetables need at least 6 hours every day. Leafy vegetables, such as lettuce, onions, carrots and beets will do okay in partial shade. But plants that bear fruit such as tomatoes, eggplant, squash; peppers need full sun (at least 6 hours).

#### **2. What type of container?**

Almost any container will do as long as it has good drainage. Smaller containers dry out very quickly in summer. The smallest for outdoor use is probably 8 to 12 inches in diameter. In part shade you may have success with smaller containers. If you are using recycled containers scrub them well and rinse in a solution of 9 parts water to one part bleach. If containers are porous (clay, wood, cement) soak them well in water before filling so they won't act like sponges and pull all the water out of your soil.

Since roots are above ground, they're more sensitive to temperature extremes. Midsummer heat can fry tiny, hair like feeder roots. Without these feeder roots, the plant will wilt even if the soil is wet. Then larger roots become very susceptible to root rot fungus that can destroy the rest of the plant. Overheating of the soil is a common cause of failure in container plantings. Thick wood insulates best, dark colored containers will absorb more heat, and light colored containers reflect heat.

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#### **How Deep Should The Container Be? How Far Apart The Plants?**

<u>These are good for low planting boxes</u>			<u>These need moderate depth</u>			<u>These are the deep</u>		
<u>ones</u>	<u>Plant Spacing</u>	<u>Soil Depth</u>		<u>Plant Spacing</u>	<u>Soil Depth</u>		<u>Plant Spacing</u>	<u>Soil Depth</u>
Beets 18"	3" apart	9" – 12"	Broccoli	12" apart	12" – 14"	Beans	5" apart	16" –
Leaf lettuce	6" apart	9" – 12"	Cabbage	12" apart	12" – 14"	Cucumbers	12" apart	16" – 18"
Onions	3" apart	9" – 12"	Cauliflower	12" apart	12" – 14"	Potatoes	6" apart	16" – 18"
Radishes	1" to 2" apart	9" – 12"	Cherry tomatoes	12" apart	14" – 16"	Summer Squash	18" apart	16" – 18"
Spinach 18"	5" apart	9" – 12"	Eggplant	12" apart	14" – 16"	Tomatoes (cherry)	18" apart	16" –
Swiss chard	6" apart	9" – 12"	Peas	3" apart	14" – 16"			
			Peppers	12" apart	14" – 16"			
			Carrots	2" apart	9" – 18 (depends on the length of the carrot)			

Leafy vegetable and herbs don't need as much room, but use a pot at least 9 inches deep so you don't have to water as often. Vegetables with extensive root systems such as cucumbers, potatoes, squash and tomatoes need containers with a minimum depth of 16 inches. Remember, the bigger the pot, the bigger the yield. An additional 2 inches deep can more than double your harvest.

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#### **3. Preparation of the soil**

Do not use garden soil! It may contain diseases and fungi and is usually very heavy and slow to drain. Buy a high quality soil mix that is sterilized, and able to absorb moisture and drain quickly

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### **4. Fertilizing. A must!**

Plants trapped in containers cannot search for nutrients with their roots. Confined root systems demand frequent light fertilizing in summer. Nutrients are leached from the soil with every watering and need to be replenished regularly. Two to four weeks after planting begin applying water soluble fertilizer mixed half strength. Continue to apply fertilizer every two to three weeks unless you supplement the soil with a slow release fertilizer.

Organic gardeners can use liquid fish emulsion, liquid kelp or blood or bone meal.

You will find 3 numbers on the fertilizer package that explain what the fertilizer is formulated to do. The numbers are always in the following order:

Nitrogen – is for green leaves      Phosphorus – is for flowers and fruit      Potassium – is for root growth

When one of the numbers is higher than the others, that means the fertilizer is designed to promote growth in that specific part of the plant. Do not overfeed. A little is good, a lot is NOT better!

### **5. Watering requirements.**

All containers dry out quickly, but watering requirements will vary according to the season, type of container, soil mix and exposure. To be safe, check containers daily. Stick your finger into the top inch of soil. If it feels damp there is no immediate need to water. If it feels dry then you should water until some runs out the bottom of the container. In mid summer and on windy days this can be a daily job. In summer provide a saucer that can fill with water and be absorbed more slowly. In winter remove the saucer so the plants don't sit in water and stagnate. Water early in the morning to avoid wet leaves at night when temperatures drop and mildew and disease organisms flourish. Use a slow even spray to avoid washing out the soil.

### **6. What should you plant?**

Shallow rooted crops like herbs, lettuce, green onions, radishes and spinach are easy to grow. Carrots, potatoes, turnips and other roots crops are simple as long as you have a container that's deep enough. Choose a container that's twice as deep as the length they'll reach at maturity. Tall or sprawling vegetables have extensive root systems (eggplant, peppers, squash and tomatoes). They will bear well if they have enough room for roots to develop.

To get the most out of your limited space, choose high yielding and dwarf varieties with moderate to standard sized fruit. These include beans, beets, carrots, lettuce, peppers, radishes and some varieties of summer squash and tomatoes. Stay away from varieties labeled "whopper". Look for bushy rather than vining plants. For the highest yield provide support for vining or trailing crops and add the stakes or trellis when you first plant the seeds or transplants so that you won't damage roots by adding them at a later date.

### **7. Seeds or Transplants?**

Plant beans, beets, carrots, lettuce, peas and radishes from seed. Cucumber, eggplant, tomatoes and squash are best purchased from transplants. Buy the smallest size available (6 packs if possible). They will develop better roots and larger sizes are not worth the extra cost.

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## How Deep Should the Soil Be? How Far Apart the Plants?

PLANT	SPACING	SOIL DEPTH
Beets	3"	9" – 12"
Head lettuce	10"	9" – 12"
Leaf lettuce	6"	9" – 12"
Onions	3"	9" – 12"
Radishes	1" – 2"	9" – 12"
Spinach	5"	9" – 12"
Swiss chard	6"	9" – 12"
<b>Carrots</b>	<b>2"</b>	<b>9" – 18"</b> Note the wide range of soil depth for carrots
Broccoli	12"	9" – 14"
Cabbage	12"	9" – 14"
Cauliflower	12"	9" – 14"
Cherry tomatoes	12"	9" – 16"
Eggplant	12"	9" – 16"
Peas	3"	9" – 16"
Peppers	12"	9" – 16"
Beans	5"	16" – 18"
Cucumbers	12"	16" – 18"
Jerusalem Artichokes	6"	16" – 18"
Potatoes	6"	16" – 18"
Summer squash	18"	16" – 18"
Tomatoes (standard)	18"	16" – 18"

These are the shallow ones – fine for low planting boxes

These need moderate depth and all but peas should be set about 12" apart

The deep ones. Note how plants spacing varies from 5" to 18"

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## TROUBLESHOOTING

### COMMON PROBLEMS IN CONTAINER GARDENING

<b>Problem</b>	<b>Cause</b>	<b>What to do</b>
Plants wilt although obtaining enough water	<b>Insufficient drainage and aeration</b>	Use lighter soil mix, increase number of drainage holes, use mix with higher percent of organic matter.
Leaf edges die or “burn” turning dry and brittle	High salt content	At regular intervals, leach container by watering until water drains from drainage holes.
Plants “leggy”, spindly and unproductive	Not enough light Too much nitrogen	<b>Relocate plant to area receiving more light</b> Apply fertilizer less often and allow water to drain through
Plants yellowing from bottom, lack vigor, poor color	Too much water Not fertile enough	Water less frequently and check for good drainage Use fertilizer with higher levels of nutrients
Plants are stunted, purplish, dying leaf tips; poor fruit or seed development	Grown at temperature that is too low Low phosphate level	Move container to a warm area Increase phosphate in base solution used for fertilizing
Leaves with small holes or that are distorted in shape	Insect damage	Use insecticides suited to the type of insect causing the problem
Plant leaves with spots, dead dried areas, or powdery or rusty areas	Plant diseases	Remove diseased portion of plant and use fungicide. If problem is severe, discard entire plant

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