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## **GROWING LEMONS & LIMES IN CONTAINERS IN SOUTH COASTAL BC**

### **Introduction**

Contrary to popular opinion, **acid citrus** (lemons, limes, yuzu and sudachi) unlike sweet citrus, do not require sustained summer heat to ripen the fruit. They will ripen fruit to perfection outside in our cool summer / mild winter south Vancouver Island climate. They can successfully be grown in the ground outside if they are properly sited against a sunny warm sheltered south or west wall and provided adequate protection during winter cold snaps. They can also be grown in an unheated greenhouse.

**Sweet citrus**, on the other hand (oranges, tangelos, grapefruit, mandarins and kumquats) require sustained high summer temperatures such as in an unheated greenhouse to produce sweet fruit.

On the South Coast, there is no need to heat the greenhouse unless the temperature is expected to fall below freezing.

Trees should start to bear fruit within two years of planting. Citrus trees blossom repeatedly from late March to early October with the strongest bloom occurring in April. It is generally best to concentrate on growing branch structure instead of fruit in the first year.

### **Growing Lemons and Limes in Containers**

If the citrus is grown in pots, choose a well-drained medium.

Your potted citrus tree should be grown in a protected (out of the wind), warm, sunny location, preferably against a south- or west-facing wall with a 3-4 feet deep and 8-10 feet high.

Sun all day is best but trees will usually do fine if they at least have the afternoon sun from 11 noon - 5 pm during the spring and summer.

#### **Pot size**

It is generally best to concentrate on growing branch structure rather than fruit in the first year.

In the 2nd year -depending on growth and size of the tree - repot the tree to progressively larger pots (i.e. match pot size to tree size) and eventually (in the 4<sup>th</sup> or 5<sup>th</sup> year) possibly into a 25-gallon size. The pot should have several large drain holes in the bottom to ensure rapid unrestricted drainage of surplus water.

#### **Potting mix**

Drainage, soil aeration and weight are the primary concerns. A well-drained lightweight nursery potting mix can be obtained from Integrity Sales on Keating Cross Road in Victoria. Alternatively, you could use a good grade potting soil loosened with pumice (at 20% per volume) or equal parts of a good commercial potting mix, seasoil and perlite.

## Maintaining fertility for citrus grown in containers

**Conventionally** When potting the tree up into a larger container, add 9-3-9 & micros (Palm & Tropical) into the potting mix at the rate of 1 teaspoon per gallon of potting mix. As growth begins in spring (early April) top-dress the tree with 1 tablespoon 9-3-9 & micros (Palm & Tropical). Repeat at 6 week intervals until August.

Later, in the fourth or fifth year after the tree has been transplanted to a 25 gallon size increase the amount of slow release fertilizer (9-3-9 & micros) to two tablespoons and scratch into the surface of the soil thus providing a constant low rate of fertilizer release. Repeat at 6 week intervals until August. Also an annual dusting of the soil in fall with 1/2 tablespoon dolomite lime should maintain correct pH and adequate magnesium levels. Palm & Tropical 9-3-9 is usually available at Home Hardware in Sidney.

**Organically** After the tree has been transplanted into a 2 or 5 gallon pot, top dress the tree annually in March with a complete organic fertilizer blend such as Gaia green 4-4-4. Supplemental irrigations with liquid fish fertilizer (following label instructions) should be applied every two weeks from April to August. Micro nutrient levels can be maintained with liquid seaweed (following label instructions)

## Irrigation frequency

Do not over-water or drought your potted tree. It is best to develop a watering schedule that keeps your tree on the dry side of moist. After potting up your tree, water well and then drain off free water in the lower third of the pot by tilting the pot at an angle for approximately 10 minutes. Do not water again until the soil dries down considerably. This allows air (oxygen) to enter the pores in the soil and promotes the maintenance of a healthy root system. When the soil has dried down considerably, water thoroughly (until water drains out drain holes); tilt the pot for about 10 min to drain off surplus water. The larger the tree (relative to pot size), the more vigorous the top growth, and the hotter the weather, the more frequently you will need to water. Conversely, small trees with little foliage to draw moisture out of the soil will require less frequent watering especially if the weather is cool and overcast. Basically if the soil is already moist you don't need to water it again. This is especially important for trees with relatively little top growth. It is best not to have your container sitting in a saucer, since water drainage may be inhibited. However, if a saucer is used, elevate the container within the saucer to prevent water logging. It is also good to leach the soil with tap water periodically (once a year) to prevent buildup of damaging salts.

Note: In a newly transplanted tree you may have to temporarily water more frequently until new roots grow out from the root ball into the surrounding soil.

## Growing Acid Citrus (Lemons and Limes) Indoors

Although less than desirable, citrus may be grown indoors. If you decide to always grow your lemons and limes indoors, such trees should be placed in a well-lit room that receives direct sunlight. They need to be misted periodically in order to maintain adequate humidity levels and to prevent spider mite infestations and unsightly dust accumulation on the foliage.

## Winterizing Lemons and Limes

It is best to over-winter the tree out of the rain. Locations such as under an overhang may provide adequate winter shelter, keep the tree dry and prevent over-saturation of the soil by winter rains. During **an arctic outbreak**, acid citrus grown outside in containers can be temporarily moved by a window in a minimally heated

(0° C to 5° C) garage or shed. Alternatively, the plants can be left outside beside a south-facing wall or moved to an unheated or minimally heated greenhouse.

Fruit in all stages of development from small green to large green, and fully ripe fruit can be found on the tree year round including winter. Both green and ripe fruit will freeze at temperatures below -2.0° C even though dormant trees are hardy to -6° C (Meyer lemon) or -4° C (Bearss Lime).

Therefore, if a freeze below -2.0° C is forecast and fruit is hanging on the tree, it will be necessary to provide some additional level of freeze protection. A relatively simple procedure to provide this protection is as follows: String a set of Christmas lights –old fashioned 7 watt bulbs--on the branches or some other support structure around the tree. Attach remay to the wall and then drape a double or even triple layer of remay cloth (floating row cover) from the wall over the plant. If the temperature is forecast to drop below freezing, turn lights on and leave on for the duration of the freeze. A small tree measuring 2'x 2' would only require 7-10 bulbs whereas a larger tree 6'x6' would require a full string of 25 bulbs. Note: a thermostat (hung in the tree under the remay) set at 0° C could be used to automatically turn the Christmas lights on and off in freezing weather. The heat given off by the bulbs is trapped between the remay and the wall and will prevent freeze damage to the foliage and citrus fruit.

Although large bearing trees can withstand normal winter temperatures on the south coast and need to be protected only during severe cold snaps, it is perhaps a little easier to simply “winterize” the tree at the beginning of the winter season (mid-November) by stringing Christmas lights throughout the branches, connecting them to a thermostat (hung in the tree) set at 0° C and covering the tree with 2 or 3 layers of remay. In this way you can go away during the winter and your tree and fruit will be well protected in the event of a severe cold snap. The remay can be removed from mature trees about mid-April. Note: To rapidly increase the size of small one or two gallon trees in the first one to two years after planting, leave the remay on for an extended period in the spring (eg to early / mid-May).

It is not the best idea to bring potted citrus into the house during the winter. However, if you choose to bring the plant into a heated house, make the transition when the temperature outside is the same as or warmer than the temperature inside the house. Do not wait until the colder weather comes in fall or winter to move your plant into your house. Shock from changes in the temperature and humidity between the outside and inside conditions leads to defoliation of trees previously grown outside. If you do bring your citrus into the house, choose a well-lit, cool room and mist foliage regularly or use a humidifier to increase humidity.

## **Pests & Problems**

Occasionally **ants or earwigs** may appear on your trees. Regular examination of the foliage should reveal their presence allowing you to physically remove or treat the pests before much damage has occurred. Spraying with an insecticidal soap solution can control aphids. Earwigs may feed on the new flush of leaves on citrus grown against a wall. Simple baited traps can be set out to reduce earwig populations. Fill small tuna tin ¼ full with a stock solution of the following mixture: 1 cup H<sub>2</sub>O & 1 T. vegetable oil & 1 T. molasses & 1 tsp. dry yeast.

**Scale insects** and **spider mites** are a common problem on citrus grown in greenhouses or as house plants but not on citrus grown outside. Periodic sprays of a light summer oil on the upper and lower surfaces of foliage should provide adequate control of scale. (sold as 500mL Horticultural Oil Insect Spray – Green Earth- at Home Hardware. Similar product available at Borden's in Victoria). In addition, periodic coarse misting of upper and lower leaves with a ‘Fog It’ mister cleans the foliage and controls scale insects during the summer months. Alternatively, bi-weekly forceful misting of the upper and lower surfaces of the leaves with a coarse water mist --using “Fog It” mist nozzle or similar-- (May-Sept) will discourage both scale insects and spider mites.

A physiologic condition called **oedema** (yellow spots on leaves) may occur on the foliage under some conditions. Maintaining even moisture to roots should reduce incidence of this condition.

It is normal for older leaves to turn yellow and drop. Severe drought, or bringing citrus which has been grown outdoors into heated low humidity interior environments can induce **severe leaf drop**.

**General chlorosis** shown by foliar discoloration, can be caused by either magnesium or nitrogen deficiency.

**Interveinal chlorosis** can be caused by zinc, manganese, or iron deficiency. Burning of leaf margins is indicative of salt build-up in soil. Leaching the soil periodically will prevent damaging salt buildup.

Note: check images on Internet to identify deficiency symptoms.

## **Supplies for sale**

We sell both remay and pre-wired thermostats to help with growing and winterizing your citrus

1) Pre-cut remay

2) Thermostats – weatherproof

-accepts 120 or 208/240 VAC; temperature range 30° to 110° F or -1° to 42° C

-prewired and can be set at 0° C to turn lights on when the temperature drops to freezing. In HOT weather, this thermostat can also be used for cooling. Check with us for instructions on how to change to cooling setting.

## **OUR Youtube Video**

Growing Lemons and Limes in South Coastal BC, Canada (April 23, 2015): <https://youtu.be/XX-R8sq6-vg>

(rev. Sept 2016)