

# GROWING DWARF CITRUS



Photo: Rita Malloy, University of Maryland Extension

Growing *Citrus* in containers can often bring a little slice of paradise to the garden and home. Although this is not a new practice, citrus fruits were a rare luxury in most of the United States during the 1800's. Citrus trees were often cultivated on seafaring ships to help prevent scurvy. Up until about 1930's, most citrus grown in containers were reserved for the wealthy homes. However, the revival of home citrus gardening is now a pleasure that can be enjoyed by many people, and many different types of citrus are available through retail garden centers and online marketplaces.

## Key Points

- Citrus plants grow naturally in tropical and subtropical regions of the world where they thrive with warm temperatures, high humidity, and sandy, slightly acidic soil.
- In New York, citrus plants need to be in containers that can be moved easily indoors during the winter to a room with a minimum of 6 hours of bright light.
- Many dwarf citrus varieties ranging from lemons and limes to mandarins and kumquats are available to home growers. Dwarf citrus plants are grafted onto cold-hardy rootstock and can be maintained as 3-to-6-foot tall houseplants.
- Adequate light, moisture, fertilizer, and hand-pollination (indoors) are essential for successful fruit production.

## How to Grow Potted Citrus

To grow dwarf citrus successfully year-round, follow these general guidelines.

**Light:** Place your citrus plant where it will receive at least 6 hours of direct sunlight or preferably more (8-12 hours) each day. During the winter, a position near a South-facing window will provide the strongest light. Supplemental indoor lighting with a fluorescent or LED grow light will be necessary if ambient light is insufficient.

In the spring after the danger of frost has passed, place your citrus tree outdoors to receive the maximum amount of sunlight – 8-12 hours of direct sun exposure – and move it back indoors in the fall, prior to the first frost. Acclimate your plant gradually when you move it outdoors/indoors. For example, move your plant to a partially shaded area outdoors after the last frost in spring, and gradually move it into more light over a period of two weeks.

**Water:** Citrus plants like consistent moisture but not waterlogged soil. Choose a lightweight container that has a drainage hole in the bottom to allow excess water to drain out.

Citrus plants in containers outdoors in the summer may need daily watering, depending on the weather conditions and the moisture-holding ability of your planting medium. When indoors, take care not to overwater your citrus plant. Check your plant's soil moisture once or twice each week. Press a finger down 2" into the soil. If it feels dry, it is time to water.

Thoroughly add water until it drains out from the bottom of the pot. Remove any excess water from the saucer or tray underneath; plants should not sit in standing water.

Allow the surface of the soil to dry out between waterings. Fungus gnats can become a problem if the surface of the soil remains wet. Leaf drop is an indicator of overwatering. Flower drop is an indicator that the soil is too dry.

**Temperature & Humidity:** Citrus plants naturally come from warm, humid environments. They do not like the dry air that is typical indoors in the wintertime. Set up an automatic humidifier near you plant to increase the humidity level (~50%). Outdoors in New York summers, your citrus plant will receive adequate humidity naturally.

In general, citrus prefers a daytime temperature between 65F-75F+ and a nighttime temperature of 55-65F. Cooler temperatures initiate flower development. Most types of citrus will be damaged when the temperature drops below 32F, so winter protection is essential.

**Soil & Fertilizer:** Use a general potting medium that provides good drainage. Repot into fresh potting medium once every three years.

Container-grown citrus plants need fertilization. They are heavy nitrogen feeders. Look for a fertilizer that has nitrogen in a 2-1-1 or 3-1-1 nitrogen-phosphorus-potassium (NPK) ratio. You can use an organic granular or slow-release fertilizer or a product labeled "citrus fertilizer." Another option is a liquid fertilizer (such as fish emulsion) applied when you water.

Fertilize your plant only when it is actively growing (spring to late summer). Frequency of application will depend on the type of fertilizer you choose (read the product label). As a general guideline, fertilize citrus at least three times in the growing season: spring, early summer, and late summer. Stop fertilizing by early fall. This will prompt your plant to harden off rather than develop new foliage. You do not need to fertilize in the winter.

**Flowers & Fruits:** Citrus trees produce fragrant white flowers in the spring. Some types (lemons, limes) will continue to produce flowers from spring to fall. The majority of dwarf citrus plants are self-fertile, so you do not need a second plant for pollination.

Flowers produced when your plant is outdoors will be pollinated by a variety of insects. When your plant is indoors for the winter, you will have to hand pollinate the flowers in order to initiate fruit development. Use a small dry paintbrush to pick up pollen from one flower and brush it from flower to flower.

Citrus fruits ripen at different times of the year, depending on the type and variety. For example, mandarins ripen from late winter to spring; Meyer lemons ripen primarily from fall to winter but may produce fruits throughout the year.

Citrus plants naturally shed some of their excess immature fruits. Potted plants typically set more fruit than they can support. The shedding of excess fruit is normal. The amount of fruit drop may be alarming (up to 75% of fruits may fall off). Fruit drop also occurs as a response to a sudden change in temperature.

Be patient when it comes to fruiting. A young citrus plant may not bear fruit until after a few years of growth. Also, fruits on some varieties may take six to nine months to ripen fully. Adequate lighting (see above) is essential for good fruit development.



Photo: Rita Malloy, Univ of Maryland Extension

**Pruning:** Prune dwarf citrus to maintain a desired height and form. Pruning may be done from the time you bring your plant indoors in the fall up until new growth develops in the spring. Keep in mind that timing of pruning will affect flowering and fruiting. Broken or dead branches can be pruned out at any time.

Prune out branches that are damaged, crossing, or growing straight upwards. Pruning the central leader branch(es) will encourage the development of side branches. Prune off suckers growing from below the graft line.

Some types of citrus (e.g., Meyer lemon, kaffir lime) produce thorns, which can be pruned off at any time without harm to the plant. Other varieties (e.g., kumquats, thorn less key limes) are thorn less.

A citrus plant that is crowded in its pot and declining in overall vigor can benefit from root pruning. Root pruning also can be done periodically to maintain your plant in a pot that is sized for easy maneuverability. Carefully tip the root ball out of the container. Slice the root ball vertically from top to bottom in several places using pruners or a knife, removing the outer 1-2 inches of the root mass. Use a hand tool to tease apart the remaining roots and repot the plant into fresh potting media. Root pruning will stimulate new growth.



Photo: Ria Malloy, University of Maryland Extension

Monitor citrus plants for scale insects and control them with an application of horticultural oil. Note the tiny translucent insects along the central leaf vein.

## Diagnosing and Managing Common Problems of Citrus

Citrus plants are prone to infestations of scale, spider mites, mealybugs, whiteflies, and aphids. Proper lighting, watering, and feeding will increase your plant's defenses against these pests. Prior to bringing citrus plants indoors for the winter, you can apply a spray of horticultural oil or insecticidal soap labeled for use on houseplants to manage pests. The table below shows commonly observed problems with indoor citrus.

## Common Problems of Indoor Citrus

SYMPTOMS	POSSIBLE CAUSES	MANAGEMENT
Leaves with a sticky clear substance (honeydew); black sooty mold may be present; ants may be present.	Scale insects, aphids	<p>Aphids: dislodge with water spray; use insecticidal soap.</p> <p>Scale: use horticultural oil. This can be done preventatively before bringing your plant indoors for the winter. Scale is difficult to control; multiple treatments may be necessary. Monitor your plant for scale to catch it early. When scale is identified, bring your plant outside on an unseasonably warm winter day and treat it with horticultural oil (upper and lower leaf surfaces). Don't forget to bring the plant back in!</p> <p>Control ants with baits. Ants tend to (protect) scales and aphids to maintain the honeydew they produce as a food source.</p>
Leaves have tiny yellow or white dots (stippling) and webbing	Spider mites	Wash leaves with plain water to dislodge mites; repeat as necessary; use insecticidal soap.
Leaves/stems have a white fluffy substance, may have sticky clear substance (honeydew) and sooty mold	Mealy bugs	Use insecticidal soap; repeat as necessary; control is difficult.
Leaves drop off	Too warm/cold, too wet/dry	Typically occurs when citrus is brought indoors, as it adjusts to different light/humidity levels. Acclimate to indoor/outdoor environment gradually. Adjust water regimen and humidity.
Leaves turn yellow and tiny insects fly when the plant is touched	Whiteflies	Use insecticidal soap.
Leaves yellowing with green veins	Soil not acidic enough	Apply a soil acidifier (containing sulphur). Apply according to instructions for potted plants.
No flowers	Plant is still in juvenile stage, does not receive enough light, or was not pollinated	Increase light level; Hand-pollinate flowers.

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