

Growing Citrus in Southern AZ (22 Common Questions)

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1. What variety should I grow?

- Lemons – Highly productive, fairly cold sensitive
- Limes – Highly productive, the most cold sensitive
- Oranges – The most popular, fruit tends to dry out, particularly on sandy or gravelly soils (Foothills)
- Mandarins (Tangerines) – Also popular, will occasionally dry out
- Tangelos – Adaptable to any area
- Grapefruit and Pummelo – Adaptable to any area

Lemon

- Vigorous trees, Acidic fruit. May be harvested green or yellow, from late July until March. Harvest when the fruit is big enough

'Lisbon' and 'Eureka' Lemon

- Vigorous trees, Acidic fruit. Moderately frost tolerant, 'Lisbon' more frost tolerant than 'Eureka.' 'Eureka' is thornless.

'Meyer' Lemon

- Small trees.
- Moderately acidic fruit
- 'Meyer' is more frost tolerant than other lemons
- 'Meyer' has a thin peel, is very juicy, and has an orange coloration.

'Mexican' or 'Key' Lime

- Small trees, May be thorny. May bloom continuously throughout the year. Acidic, small fruit. Fruit yellow when mature, Very low frost tolerance

Bearss Lime

- Larger fruit than the Mexican Lime. Trees short-lived due to wood pocket disease. Quite frost sensitive.

Orange

- Medium to Large trees. Most popular citrus in the world. May be harvested from November until May.

Round Orange

- Early and mid-season varieties marketed in Arizona as "Arizona Sweets". Large tree. Sweet, juicy fruit with few seeds. Moderate frost tolerance. Harvested November through February. Best for juice or eating fresh.

'Valencia' Orange

- Late season, harvested from February until May. Large tree. Sweet, juicy fruit with few seeds. Moderate frost tolerance. May regreen in warm spring months. Best for juicing, has tough section walls.

'Navel' Orange

- Mid-season, harvested from November until March. Large tree. Sweet fruit with no seeds. Moderate frost tolerance. Best for fresh eating, is not particularly juicy.

Pigmented (Blood) Orange

- Mid-season, harvested from December until February. Large tree. Sweet, juicy fruit with some seeds and a distinctive flavor. Flesh and peel color requires cool nights to develop.

Orange Ripening Chart

Early Season

November – December

Hamlin

Marrs

Fukumoto Navel

Fisher Navel

Beck Navel

Atwood Navel

Mid-Season

December – February

Trovita

Shamouti

Washington Navel

Cara Cara Navel

Moro Blood

Tarocco Blood

Late Season

February – May

Valencia

Chislett Navel

Powell Navel

Lane Late Navel

Sanguinelli Blood

Mandarins

- Small to Large trees, Wide variety of fruit characteristics. May be harvested from October until March

Clementine

- Mid-season, harvested from December until February, Small to medium tree. Fruit are small, easy to peel, and have a distinctive flavor, but may be seedy. Seedless if grown in isolation. Requires a pollinator for best production and fruit size. Moderate frost tolerance. 'Algerian', 'Fino', 'Clemenules' or 'W. Murcott Afourer' common cultivars. Tango is seedless.

Fairchild

- Early to mid-season, harvested from November until February. Small to medium tree. Fruit are small, rather difficult to peel, and seedy, but with good flavor. Requires a pollinator for best production. Moderate to good frost tolerance.

Kinnow and Gold Nugget

- Late season, harvested from February until March. Large tree. Fruit are medium sized, not easy to peel, seedy, but are very sweet. Tends to bear alternately. Moderate to good frost tolerance. Gold Nugget is seedless.

Minneola Tangelo

- Mid-season, harvested from December until February. Large, vigorous tree. Fruit are large, easy to peel, and juicy. Moderate to good frost tolerance. Susceptible to sunburn.

Grapefruit

- Large trees. White or red fruit. May be harvested from November until June, best flavor after January.

'Marsh' Grapefruit

- Vigorous, tall tree. 3½ to 4 inch diameter fruit. Seedless, good flavor.

Pigmented Grapefruit

- Vigorous, tall tree, 3½ to 4 inch diameter fruit. Seedless, good flavor. Redblush (Ruby Red) is the most commonly available. Rio Red flesh color is 5 times more intense than Redblush. Flame is a new variety from Florida. Star Ruby is no longer recommended.

Pummelo

- Related to grapefruit, Large, seedy fruit. May be white or pigmented. Generally, do not have a bitter flavor.

'Chandler' is a common variety. Also, 'Red' and 'Sarawak'.

Oro Blanco or Melogold

- Grapefruit x pummelo hybrid. Combines the seedlessness of a grapefruit with the lack of acidity of the pummelo. Ready to eat in December and January.

2. How can I get a dwarf tree?

- Rootstock choice – 'Flying dragon is dwarfing (4-6 ft).
 - C-35 Citrange, Swingle Citrumelo, and Trifoliate Orange are semi-dwarfing (8-12 ft)
 - All others are standard – 12-20 ft.
- Pot the tree or restrict the wetted zone when irrigating
 - Root restriction, or water restriction

3. How do I plant my tree?

- Plant in spring or fall. Fall is better, but spring is OK. No soil amendments necessary. Make hole sufficiently wide, but not too deep. Plant at grade or above. No air pockets

4. How do I water my tree?

- Avoid leaf curl. Water sufficiently deep. Water sufficiently wide. Water more in summer than in winter.
- Most roots are in the top three feet of soil, water to that depth. Use shovel, spade or probe to test
- Most roots extend at least as far out as the canopy. For a tree to grow to its capacity, the wetted pattern should extend out this far. Will need to add drippers, or extend the "well" as the tree grows.
- Mature trees (3 years old or more). For flood or basin irrigation, apply water every 10 to 14 days in the hottest part of the summer, and every 3 to 4 weeks in the coolest part of the winter.
 - For drip irrigation, irrigate every 3 to 10 days.
- Small trees. For flood or basin irrigation, apply water every 7 days in the hottest part of the summer, and every 14 days in the coolest part of the winter.
 - For drip irrigation, irrigate every 2 to 7 days.

Do not water too frequently; you will have salt burn on leaves. To counter salt damage, leach and use sulfur to loosen soil. Leach – water for 12 to 24 hrs continuously, once or twice a year. Use Soil treatments – gypsum, liquid sulfur.

5. Can I over-water my tree?

- Yes, if the tree is planted too deeply. Otherwise, it is possible in the valley, but virtually impossible on the sandier soils.
- Caliche layer can be a problem, must break through it.
- Some will over-water in the winter

- Symptoms are leaf yellowing and defoliation. Can lead to Phytophthora root rot.

6. How do I fertilize my tree

Citrus Trees Can't Read, but You Can

- Citrus do not care what type of fertilizer they get. They just care that they get enough of it. That's where you come in.
- Read the directions!
- One approach is to purchase fertilizer that contains all the nutrient elements that the trees need, rather than buying a single element fertilizer. This reduces chance for error, but is more costly. Granular or slow release fertilizers are best
- The alternative is to purchase single element fertilizers.
- Always incorporate and water in granular fertilizers.
- Micronutrients can be applied if needed, but may not be necessary, and are always expensive
- Fertilizer spikes may be used, but not the best way of applying fertilizers.
- Apply sulfur to loosen soils if salts are a problem.
- Weigh fertilizers rather than apply by volume.
- Use fertilizer stakes if you will not be able to make fertilizer applications at the appropriate time.
- Nitrogen (N), is the most important nutrient for citrus
- N fertilization depends on tree age
 - Year 1: 0.00 – 0.25 lbs. N/tree
 - Year 2: 0.25 – 0.50 lbs. N/tree
 - Year 3: 0.50 – 1.00 lbs. N/tree
 - Year 4: 1.00 – 1.50 lbs. N/tree
 - Year 5 and older - 1.5 to 2 lbs N/tree
- Fertilize a little more on sandy soils.
- Be sure you know your tree age.
- Don't assume label directions are correct!

Fertilizing Citrus with N

- Divide the pound of N needed per tree per year by the first number of the analysis (expressed as a decimal). This will give the amount of fertilizer to apply per tree per year.
- Example: For a mature tree requiring 1.5 lbs. N per year, and using 21-0-0 fertilizer, apply $1.5/0.21$, or 7.1 lbs. Of 21-0-0 per year.
- For lemons, limes and 'Minneola tangelo, apply fertilizer in 3 to 6 equal applications, from February 1 until October 31. Apply 2/3 in spring and 1/3 in fall.
- For oranges, grapefruit and all other mandarins, apply all fertilizer before July 1 in 3 to 6 split applications.

Nitrogen Deficiency Symptoms

- General yellowing of leaves, Occurs on older leaves first, then on the younger ones. Leaves lifespan is shortened.
- Deficiency not to be confused with "Winter Yellows"

P fertilization

- P found in most complete citrus foods. Or, apply ammonium phosphate (11-48-0, or 18-46-0), triple superphosphate (0-45-0) or several organic sources. Apply P only once annually (March, or October), unless you are applying P as part of a complete fertilizer.
- Apply about 0.1 lb. P_2O_5 per tree per year of age, not to exceed 0.5 lbs.

Micronutrients

- Iron and Zinc are most often necessary, Mn on occasion.
- Iron sulfate is not effective when soil pH is between 7.4 and 8.5.
- Ironite may or may not be effective
- Chelates are the best carriers for micronutrient application.

Iron and Zinc Deficiency Symptoms

- Interveinal chlorosis occurs on younger leaves. Zinc deficient leaves are generally small, whereas iron deficient leaves are not. Both deficiencies can occur in the same leaf. Do not confuse micronutrient deficiency with nitrogen deficiency.

7. Why are the leaves yellow?

- Overwatering, underfertilization (OK in winter), phytophthora root rot or sunburn

8. Why are the leaves curling?

- Underwatering (leaves curl like rolled tacos) or citrus Thrips (leaves are contorted)

9. Why has the tree defoliated?

- Underwatering, overwatering, severe underfertilization, severe overfertilization (leaf burn), transplant shock, phytophthora root rot, freeze or hurricane!

10. How do I prune the tree?

- Citrus trees do not need to be "shaped" annually.
- Pruning is needed in the following cases: To remove suckers (watersprouts), To remove undesirable or dead wood, To remove crossing or rubbing branches or To allow in light if production is low.

Pruning Citrus

When removing large limbs that will expose previously shaded parts of the tree to the sun, protect those that remain from sunburn. Pruning is best done in the late winter. Pruning may reduce the crop. Trunk must be painted to avoid sunburn if it is exposed. Use whitewash or other water-based paint. Can use cardboard as well. Prune out suckers.

- Do not skirt the tree, unless necessary.

11. Why are the limbs dying?

- Too little light in the tree center, or disease, such as Coniophora, Antrodia or Nodulisporium (Limb dieback with wood staining) typically found on lemon, or Hendersonula (Limb dieback with black mold under the bark) that may be found on all citrus
- Prune it out!

12. Why is there no yield?

- Genetics – Alternate bearing in Minneola, Underwatering, particularly in times of high temperatures when the tree has flowers or fruitlets leads to flower or fruit drop, such as March 2004. Frost (28F for more than 4 hours), under-fertilization with N, or excessive pruning

13. Why is my fruit small?

- Genetics – Some fruit are naturally small, heavy crop load (Hand thin), or low nitrogen status

14. Why is my fruit splitting?

- Genetics – Some fruit have naturally thin peels, non-uniform watering, sunburn, or low nitrogen status

15. Why is my fruit sunburned?

- Environment. So, spray tree with water-based white paint and/or pick from north or east side of tree

16. Why is my fruit dry?

- Environment, excessive Nitrogen (Add potassium or organic matter), too vigorous rootstock. The cause is not under watering. Pick smaller fruit, and pick it sooner.

To access more University of Arizona citrus publications, go to the website www.ag.arizona.edu. Click the button "Publications/videos". In the "Title contains" box, type "citrus", then press the "Show publications" button.

17. Why is my grapefruit peel so thick and the fruit is misshaped?

- Environment and/or excessive nitrogen

18. Why is my fruit so green?

- Fruit not mature enough, or fruit subject to high temperatures in the spring, or excessive nitrogen.

19. Why is my tangerine or orange fruit black?

- Alternaria. There is no control.

20. What are those bugs on my fruit and leaves?

- Citrus Thrips, Citrus Peel Miner, Woolly Whitefly, Orange Dogworm, California Red Scale, Mites, Citrus Leaf Miner, or Aphids. **If you see the Asian Citrus Psyllid, call (602) 542-0955.**

21. How can I protect my tree from the cold?

- More than four to six hours of cold below 28F will cause damage.
- Early or late season cold will cause more damage than cold in mid-winter.
- Trees on vigorous rootstocks are more likely to be damaged (e.g. Volkameriana, macrophylla or rough lemon).
- Plant in warm area.
- Southern exposure
- Cold air drainage
- Maintain weed free area around tree
- Irrigate
- Provide and/or maintain supplemental heat
- Christmas lights
- Shop lamp
- Blanket or burlap (frame)
- Protect the trunk

22. When should I harvest and eat the fruit?

- When it tastes good!

Thank you!