



Let's Grow Tomatoes!



THE UNIVERSITY
OF ARIZONA

Why Grow Tomatoes?



Tomatoes add beauty to gardens and patios

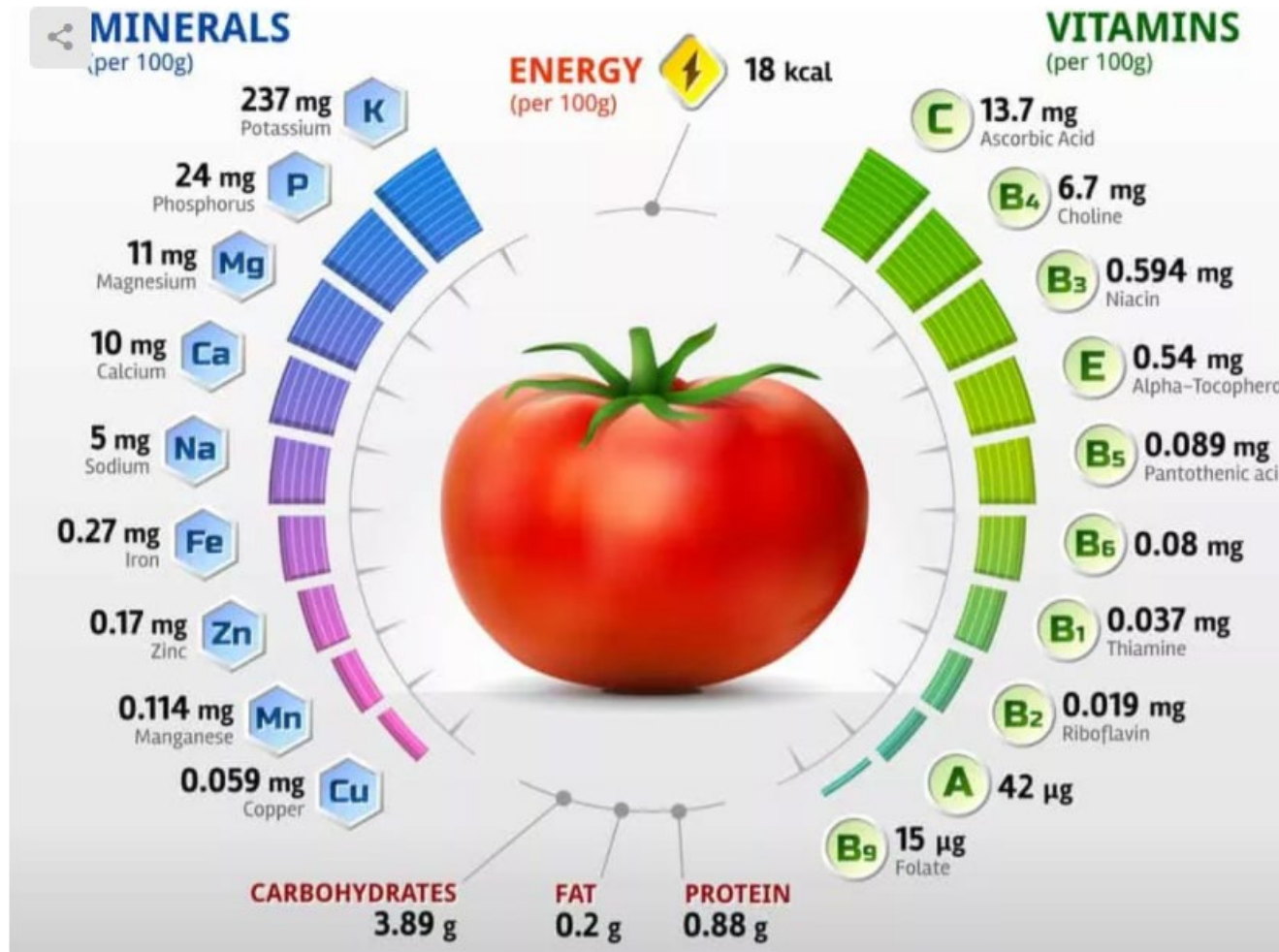


Tomatoes can be grown pretty much anywhere in anything



Tomatoes are GOOD for YOU!

Tomatoes Nutrition Facts Chart



They taste really good!



3 Questions We Often Hear

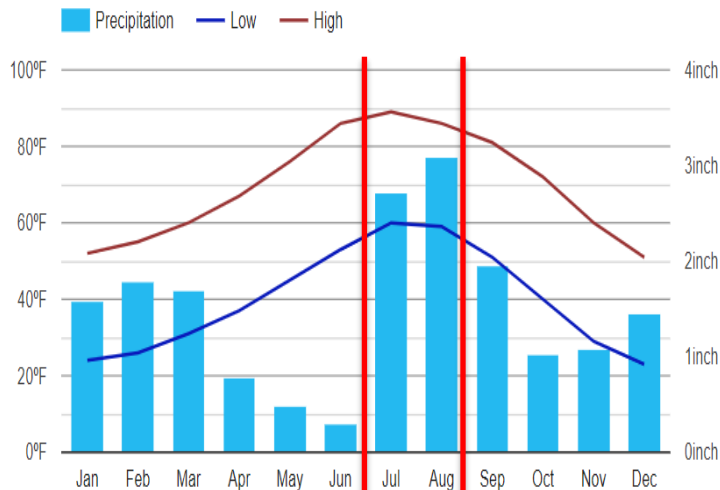
- 1. Is a tomato a fruit or vegetable?**
- 2. Do tomatoes contain GMOs?**
- 3. Why are store-bought tomatoes so flavorless?**



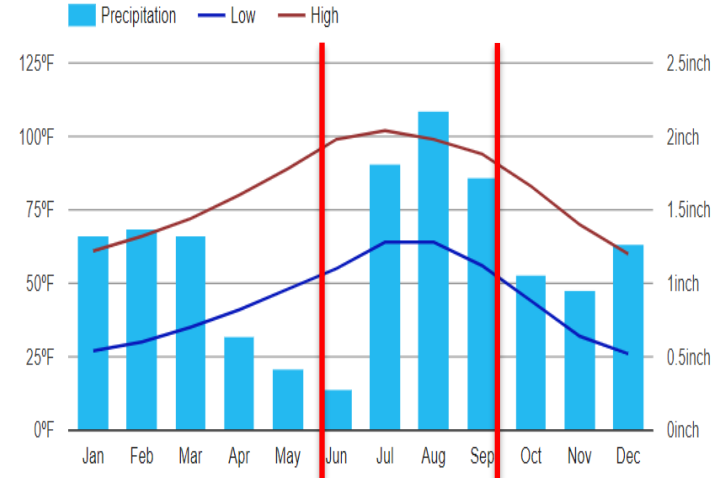
Tomato Growing Info

- **Local Growing Season – average 163 days**
 - Tomatoes - range 55-80 days
- Tomatoes set fruit only when:
 - Night temperatures are above 55 degrees Fahrenheit and
 - Daytime temperatures do not exceed 90 degrees Fahrenheit.

Prescott Climate Graph - Arizona Climate Chart



Camp Verde Climate Graph - Arizona Climate Chart



Types, Sizes & Varieties



Types



Beefsteak

These big, thick and meaty beauties are ready to star in sandwiches, mingle with basil, and taste delicious simply sprinkled with salt and pepper.

Cherry/Grape

Top off summer salads, sweeten party trays and treat the kids.



Paste

The preferred choice for sauces and salsas, these firm-fleshed tomatoes are dense, meaty and contain little juice.

Saladette

Best for salsas and salads, like paste tomatoes, you can also use them to make sauce.



Slicer

Slicer tomato seeds and plants are great hybrids that produce heavy yields of delicious, extra-tasty fruit.

Cocktail

Resembling a large cherry tomato, cocktails are perfectly sized for halving or quartering and adding to salads. Excellent for fresh eating.



Determinate vs Indeterminate simply defined

Determinate – all blooms and fruit develop at the same time - short harvest season

Indeterminate – blossoms and fruit develop as the vine grows – continual harvest season



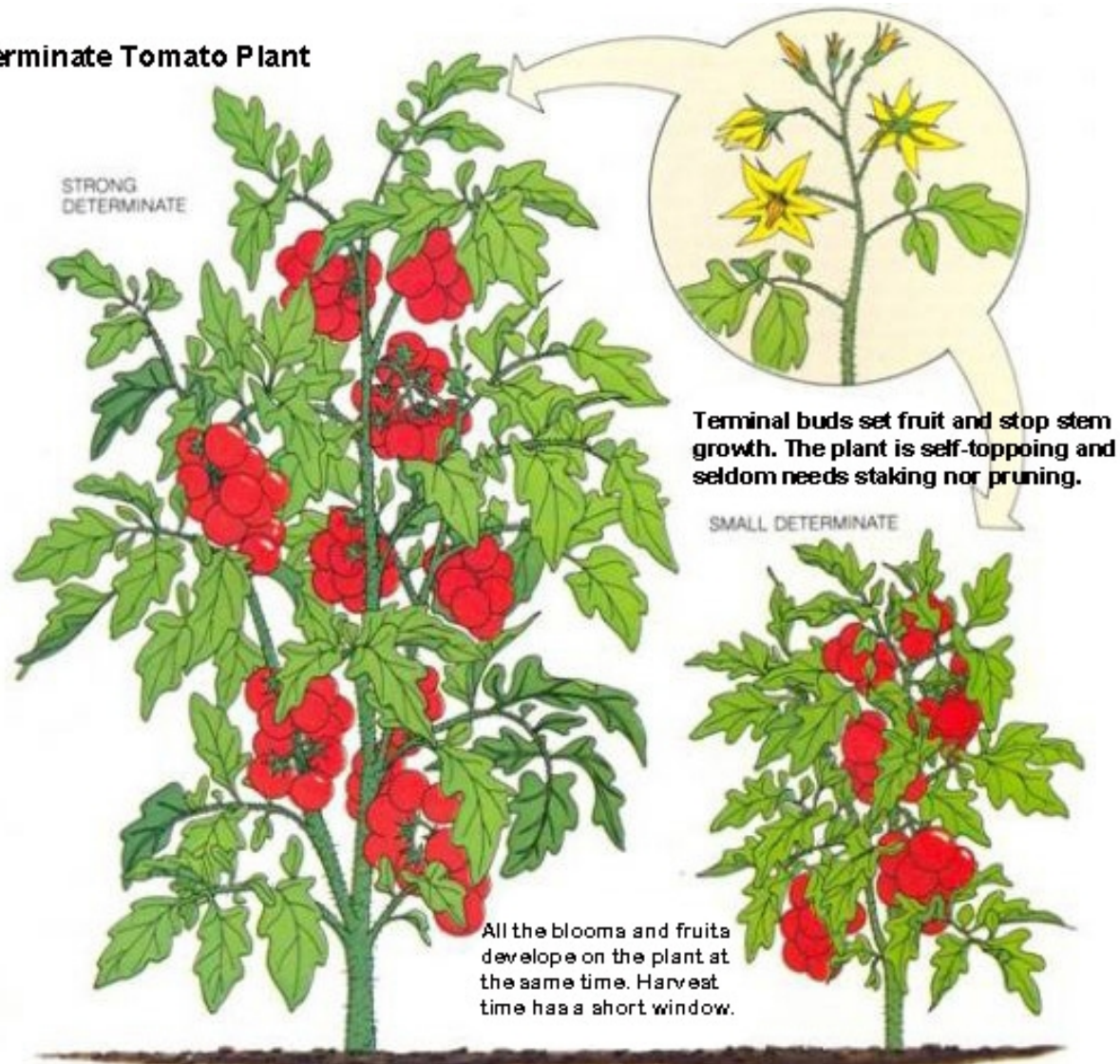
Determinate

- Have a bush like habit, often called "bush" tomatoes
- The plant will grow vertically at first, then stop. The remainder of growth will take place on the side shoots
- Growth habit is approximately 4 feet tall or less
- Crop bearing is over the course of 4-5 weeks
- The plant requires minimal staking
- Tend to be more compact and manageable
- Suitable for container planting; do well in 5 gal pots
- Generally do not require pruning. Removing suckers will reduce the eventual yield of the plant.



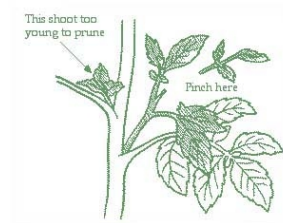
Determinate

Determinate Tomato Plant



Indeterminate

- Often called "vining" because they will continue to flower and bear fruit until the plant is killed by frost
- Can grow 6 feet or more
- They require staking or caging for support
- Removal of suckers will help control growth. This is especially useful toward the end of the growing season when fruit would not have time to form

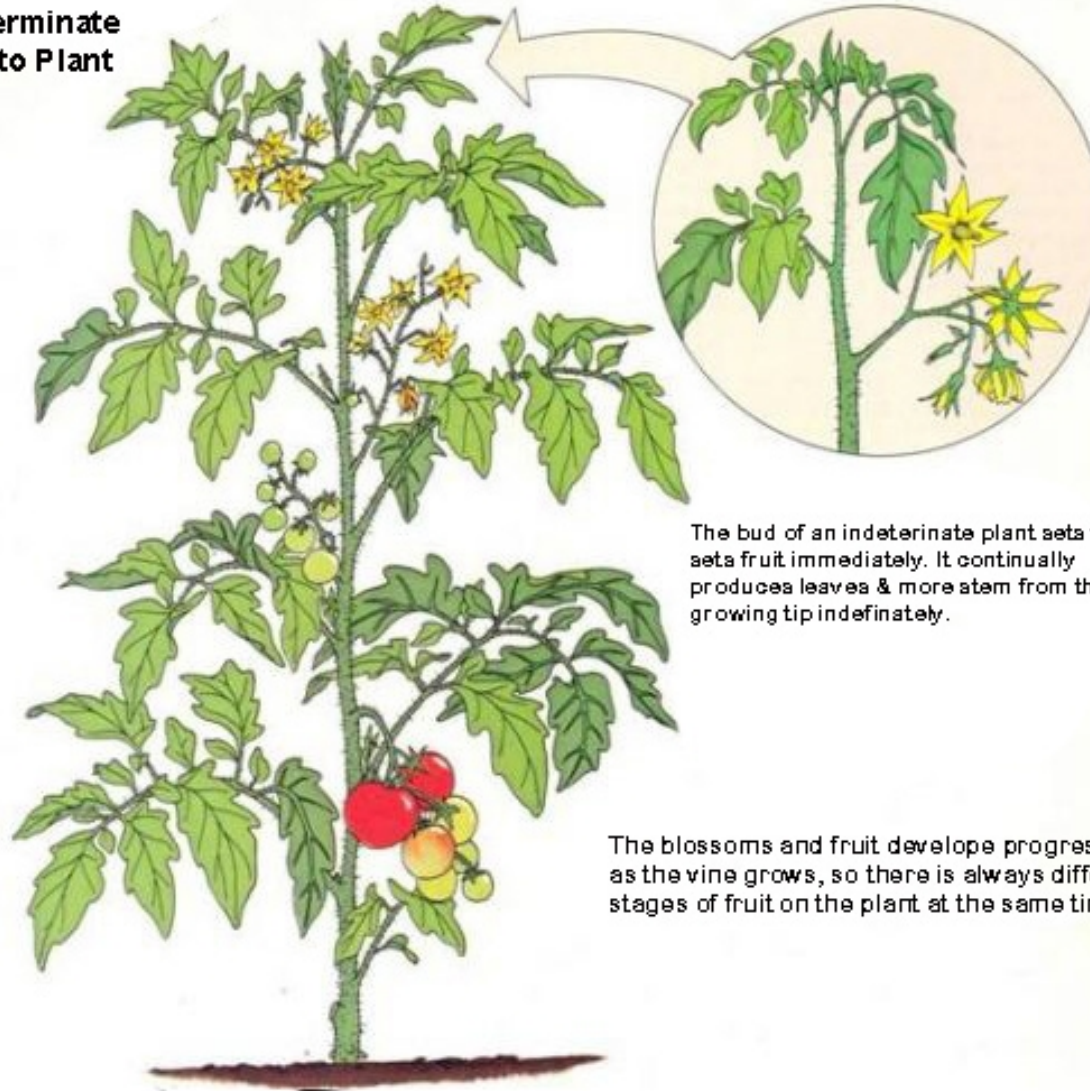


- Plants with two or more stems produce more tomatoes with better foliage protection from the sun than plants with one stem. However, tomatoes pruned to one leader will bear earlier but with less yield over all.



Indeterminate

Indeterminate Tomato Plant



The bud of an indeterminate plant sets fruit immediately. It continually produces leaves & more stem from the growing tip indefinitely.

The blossoms and fruit develop progressively as the vine grows, so there is always different stages of fruit on the plant at the same time.



Hybrid vs Heirloom

Hybrid seeds (also known as F1)

- **Produced through controlled pollination**
- **Human assistance required**
- **Consider it the blending of two different plants**

Heirloom seeds (also known as open pollinated or standard)

- **Produced through open pollination**
- **Similar to the original plant but not identical**
- **Genetic drift can occur**



Hybrid Varieties

also known as F-1 or first generation

- Produced through controlled pollination of two different tomato varieties
- Hybrid varieties have been developed for disease resistance, higher output, etc.
- The seeds from hybrid tomatoes (F-2, or second generation) will not breed true, but will revert to plants with a mix of traits from their parents (i.e. seeds from a Big Boy tomato will not produce Big Boy plants)



Heirloom Seeds

- **Loose term that applies to varieties that have been around for several generations**
- **Are genetically stable (seeds from a Brandywine plant will produce Brandywine plants)**
- **Seeds from the plants will produce plants true to the variety**
- **Some “genetic drift” can occur**



Open Pollinated Plants

- **Are genetically stable**
- **Seeds from the tomatoes will breed true to the variety, although some variations can occur**
- **Usually refers to heirloom varieties, but some hybrids have become genetically stable (Roma)**



Dwarf Tomatoes

- **Cross Hemisphere Dwarf Tomato Breeding Project, 2006**
- **150 Growers Participated**
- **Crossed proven dwarf varieties with growers favorites**
- **3-4 feet tall (even indeterminate)**
- **Grows well in containers**
- **17 New, unique, stable varieties – all colors & sizes of fruit**



Seeds vs Purchased Plants

Growing seeds can be intimidating but:

- You can get exactly the varieties you want
- You know the plants are disease-free
- You can adjust the timing for your planting date
- You will probably have extra plants to give to friends



Seeds vs Purchased Plants

Purchased plants

- **Easy! More convenient and quicker than starting from seed**
- **You can buy exactly the number of plants you want**
- **Check farmers markets; they sometimes have unusual varieties**



Seeds vs Purchased Plants

Nothing says you can't do both. If one of the varieties you planted does not come up from seed, you can always buy a plant instead.



Saving and Growing Seeds from Your Own Tomatoes

- **Over 90% of tomatoes are self-pollinated**
- **If different varieties are planted closely together, wind and bees can cross-pollinate plants and produce unexpected hybrids**



Saving Seeds

- Squeeze tomato into a jar; cover with cheesecloth
- Set in sun and let a layer of mold form, 3-5 days. Add ½ cup of water if the pulp dries out. Smells bad.
- Add more water and stir. Viable seeds sink
- Pour out juice & floating seeds
- Repeat until the good seeds are clean
- Dry seeds on paper plate or screen (will stick to paper towels)
- Store in airtight container in a cool dark place or freezer



Starting Seeds

- Pot can be anything clean that will hold soil & water
- Sterilize old pots with 1:10 chlorine bleach solution & rinse well
- Use sterile soil, not “native soil” or garden soil
- Sterile starting soil has sphagnum moss, vermiculite, perlite
- Sterile potting soil has “mature compost,” sphagnum moss, and vermiculite or perlite for better porosity
- Moistening soil in advance is a good idea



Starting Seeds (cont.)

- **Plant seeds and keep them in a warm place until germinated (2-4 times as deep as the seed is wide)**
- **Once germinated, plants need**
 - * **Water – keep soil moist, but don't overwater**
 - * **Light – ideally set up a “cool” light a few inches above the plants with a timer to turn on for 12-16 hours a day. Plants in windowsills get “leggy.”**
 - * **Fertilizer – don't need until the plant has several sets of full leaves. If used, only weekly at ¼ strength**
- **Before planting outside, take several days to “harden off” the seedlings**



Buying Plants

- Make sure you get the variety labeled
- Check for insects
- Avoid containers that appear to have rootbound plants



- Should you buy plants with fruit?



Planting your Tomatoes

Prepare your beds

- Turn over the soil
- Add amendments (alfalfa cubes – phosphate)
- Lay out irrigation system
- Plant deep.
- Can lay on side. (Not with grafted tomatoes)
- “Mini stake” for protection



Planting your Tomatoes (cont.)

- “Mini stake” for protection
- Create collars to fool cutworms
- Mulch you garden



Caring for Your Tomatoes

Support

Staking

- 6 foot stakes
- Prune tomatoes weekly, remove suckers

Caging

- Caged plants don't need pruning or tying
- Make your own from concrete reinforcing wire
60" x 66 – 72"
- Cage will be 18"-20" wide; cut off bottom row of wire so easier to stick in the ground



Caring for Your Tomatoes

Pruning

- Prune to one to three main stems
- Determinate plants need little pruning beyond that
- Prune at end of season to stop continued new flowers
- Prune otherwise as desired; more for staked plants

“Normally sane tomato growers often come to blows when debating the merits of pruning” Carolyn Male



Caring for Your Tomatoes

Fertilizer

- Nitrogen- Phosphorous-Potassium
- N=leafy growth P=root & fruit development
K=durability and disease resistance
- Go for high middle number 8-32-16 or 6-24-24
- After fruit set fertilize every 2-3 weeks. Don't overdo.



Dealing with Problems

Physical

- Blossom end rot – insufficient calcium, stress.
Correct watering



- Cracking – overwatering (or rain), variety
- Sunscald – white patches & blisters – over pruning
- Hail – happens
- Daytime wilting – wait to see if plant recovers in a.m.
- Dead leaves at bottom of plant – probably OK, but can be removed



Dealing with Problems

Insects

Visual inspection is very important

- **Droppings = caterpillars (larva). Pick off tomato hornworms**
- **Slime trail = slugs. Beer trap (or honey)**
- **Webbing = spider mites. Arachnids; insecticides won't work**



Dealing with Problems

Insects

- Honeydew (clear sticky spots) & Black sooty mold = aphids (spray with water or insecticidal soap), mealy bugs, whiteflies, scale.
- Chewed leaves= cutworms (use plant collar), hornworms
- Dark spots on fruit, yellowish areas on ripe fruit= stinkbugs (parasitic wasps, insecticidal soap)



Dealing with Problems

Disease

- **Fungi – Once a plant is infected there is no remedy. Keep foliage dry, remove dead plant parts, avoid excessive water.**
- **Bacteria – Nothing you can do; try to avoid with good sanitation. Copper spray?**
- **Viruses – Once a plant is infected, destroy it. (Throw in trash)**



Dealing with Problems Disease

- Tobacco mosaic virus – if you smoke, wash hands thoroughly with soap & water before going into garden

Plant disease resistant hybrids(V,F,N)

or grafted heirlooms

Tomato Growing Tip #21
Check disease resistance codes when choosing tomato varieties.
Tomato Dirt

Disease	Common Code
Verticillium Wilt	V
Fusarium Wilt	F
Nematodes	N
Tobacco Mosaic Virus	T
Alternaria Leaf Spot	A
Gray Leaf Spot	St



End of Season

- You may be able to extend a little covering with sheets
- When season over, throw out plants; don't compost



But is that really all there is...



Hydroponics- Year Round Goodness!



**So that's really
all there is folks!**

QUESTIONS?



**For more information about our
programs,
visit our website at
extension.arizona.edu/yavapai**

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Cooperative Extension

Yavapai County

