



**"Growing Great Tomatoes"
Part 2**

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Ohjdf | #Buvhwqdwirg

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GCMG Class of 1986

Adopted and Presented by: Ira Gervais
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TEXAS
MASTER & GARDENER
TEXAS A&M AGRILIFE EXTENSION
Galveston County

A Product of the Galveston County Master Gardeners

Growing Great Tomatoes in Galveston County

- The first program was about starting tomatoes from seed.
- This second program deals with growing tomatoes in Galveston County.
- The third program will deal with tomato diseases and tomato stress management.

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What Will Part 2 Cover?

- Choosing a good location.
- Getting organized.
- Choosing a variety(s).
- Understanding the timing of when to plant.
- Preparing the soil.
- How to go about planting your transplants (including planting horizontally).
- Gardening tomatoes in a container.
- Supporting and protecting your transplants in the garden.
- Understanding the right time to pick tomatoes.
- What to do with green tomatoes.
- Protecting transplants against birds, weather, and disease.

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Planning Ahead Where To Plant

- Pick a site that gives your tomato plants at least 8 hours sunlight a day.
- Plan on using a raised bed here in Galveston County. (gumbo soil, rain, easy to water)
- Figure out how much space you have available for planting tomatoes. (This will help you determine how many plants you can grow.)
- Plan to either stake, trellis or cage your tomatoes. All work well.
- You will need water access. Plan to water on a regular basis.

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A Good Location Includes:



- Good Drainage.
- Plenty of Full Sunlight (8 + hrs). This has a direct affect on yield.
- Good enriched soil.
- Not too much wind. You may have to protect transplants when they are first planted.

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Getting Organized



- Gather all necessary materials and tools.
- i.e. ...fertilizer, starter solution, buckets, stakes, containers, cages, special fertilizer, cut worm collars, watering rings, pump sprayer, etc.
- Best tool is a good sprayer.

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Planning Plant Spacing Needed

- If you are using cages, between plants you will need a minimum 30" for determinates and for indeterminate plants 36". (Cage height should be at least 48"-60")
- If you are using stakes, between plants you will need a minimum 24" for determinates and for indeterminate plants 30". (Suggest stakes be at least 2"x2"x96" and 2ft in ground)
- Row spacing should be about 48" apart.
- You can stagger your plants to get a little closer but plants too close will introduce diseases.
- Also if you are getting less than 8hrs of sunlight you will need more spacing to allow more sun to your plants.

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Choosing a Variety



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Choosing a Variety for Galveston County

- See Varieties List Handout provided for the Galveston County area to help choose a variety.

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What Variety ?



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Choosing a Tomato Variety

- Determinate vs. Indeterminate
- Early Season, Mid Season, Late Season
- Heirloom vs. Hybrid
- Disease Resistance
- Taste
- Planned Usage

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Choosing a Variety – Determinate Plant Growth

- This refers to a bush variety that reaches a certain height and stops growing and puts its energy in developing fruit.
- These varieties should be part of your tomatoes you are growing as they take up less square footage of your growing space. Therefore, more production for the space you have.
- Majority of the fruit will grow with all fruit production maturing within about month.
- Many varieties are especially suited to growing in pots and smaller gardens.

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Choosing a Variety – Indeterminate Plant Growth

- Because they continue to grow throughout the growing season, they require more maintenance especially in a disease prone environment.
- Will require more square footage to grow.
- Will require much larger container if grown in a pot.
- Produces fruit all along the stem.
- Needs extra tall supports of at least 5ft.
- Can grow to 10ft-15ft.
- These are great varieties for salads and sandwiches and are available throughout the growing season.

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Choosing a Variety - Dwarf

- Plant breeders have developed tomato variety that require limited space yet produce full-size fruit. ... They called them dwarf tomatoes, referring to the size of the plant and not the size of the tomatoes.
- Most dwarf varieties are Indeterminate.
- Because of their generic breeding they continue to produce fruit and flavor in a small area.
- Plants usually vary between 2-4 ft.
- There are also micro dwarf varieties now available that grow 4"- 6" and produce well.

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Choosing a Variety - Dwarf

Dwarf:

- For container growing and small places.
- Dwarfs are usually Indeterminate.



Micro Dwarf:

- There are also micro dwarf varieties now available that grow 4"- 6" and produce well.



Choosing Plant Growth Early, Mid-Season, Late Season Variety

- Early Season Variety – A tomato that matures in 49 - 67 days.
- Mid Season Variety – A tomato that matures in 68 - 75 days.
- Late Season Variety – A tomato that matures in 76 - 80 + days.

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When Should You Start Counting the Days To Maturity?

- When you plant it in the garden?
- When you start it indoors?
- It can be somewhat confusing to glean when to start counting.
- Unfortunately there is no standard definition.

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Counting Days To Maturity

- However most sources work on the general agreement that:
 - If you start the seed indoors and transplant it into your garden, start counting from when you transplant. This also holds true for transplants you purchase.
 - If you direct sow it in the garden (Not recommended), start counting when the seed germinates and you see the plant emerge, which is usually within a week or two of planting.
 - Some gardeners prefer to wait until the true leaves appear, which should be within another week.
- These are only general guidelines.

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Factors That Impact Days To Maturity

- All kinds of factors will impact the actual number of days to maturity.
 - ❖ Weather has the biggest influence.
 - Cold weather can cause seedlings to slow their growth and perhaps even stunt it... Too little or too much rain can also play havoc with young plants... Too much wind... Not enough sun.
 - ❖ Soil conditions.
- We rarely have ideal growing conditions, but given somewhat reasonable conditions, you can expect the number on the seed package to be an approximate gauge on the days to maturity.

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Terrific Hybrid Tomato Varieties



- Celebrity
- Early Girl
- Bush Early Girl
- Park's Whopper
- Fourth of July
- Champion II
- Better Boy
- Big Beef
- La Roma II (for paste)
- Super Marzano (for paste)

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Terrific Heirloom and Open Pollinated Tomatoes



- Brandywine
- German Johnson
- Cherokee Purple
- Black Krim
- Carbon
- Siberia
- Elfie (Yellow)
- Tangerine (Yellow)
- New Big Dwarf
- Black Cherry (Cherry)

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Terrific Cherry Tomatoes



- Sweet Chelsea
- Juliet
- Baxter's Early Bush
- Yellow Pear
- Sweet Million
- Cherry Blossom
- Sun Gold
- Texas Wild (Heirloom)

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Tomato Production



- "Champion"- highest producer ever in Texas A&M trials at 73 lbs./plant.
- Average production on modern large variety hybrids is 40-50 lbs./plant.
- Average home gardener produces less than 10 lbs./plant for the same variety.

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This Years GCMG Tomato Test Trials

See 2020 Tomato Test Trials Handouts for Results



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This Years GCMG Tomato Test Trials

See 2021 Paste Tomato Test Trials Handouts for Results

- "Andiamo"
- "Black Plum"
- "Hungarian Italian Paste"
- "Incas"
- "Invincible"
- "Heirloom Marriage Marziner"
- "La Roma III"
- "Pozzano"
- "Roma"
- "San Marzano"
- "Sunrise Sauce"
- "Yaqui"

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This Years GCMG Tomato Test Trials

• Recommended from 2021 Test Trials:

- "Andiamo" - Taste, Early and Production
- "Black Plum" - Taste Early and Production
- "Roma" – Taste and Production
- "Sunrise Sauce" - Early and Production
- "San Marzano" - Taste and Production
- "Heirloom Marriage Marziner" - Taste and Production

***Not Recommended from 2021 Test Trials:

- "Hungarian Italian Paste"

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GCMG Tomato Test Trials

• Recommended from 2017 Test Trials:

- "Fourth of July"
- "Parks Season Starter"
- "Fireworks"
- "New Big Dwarf"

• Recommended from 2018 Test Trials:

- "Fourth of July"
- "Peron"
- "Burpee Early Pick"

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Timing:

When to Start Your Plants Outdoors?

- Timing is everything. Plant after the last average frost in your area.
- The season is best extended at the beginning rather than trying to stretch into late June or July.
- In Galveston County by late June to early July, summer heat above 92+ degrees and repetitive high night-time temperatures (above ~75 degrees) effectively end the production of quality tomatoes.
- Stinkbugs & "Early Blight" can also bring the season to an early close.
- If fall planting you must plant to beat the first frost in your area.

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Average Last Spring Frost Dates (NOAA)

- Galveston Island...~Jan. 31
- Texas City – La Marque Area...~Feb. 9
- Dickinson - Santa Fe Area...~Feb. 12
- League City-Friendswood-Kemah Area...~Feb. 20
- Clear Lake-Lower Houston Area...~Feb. 27

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Average Fall First Frost Dates (NOAA)

- Galveston Island...~Dec. 17
- Texas City – La Marque Area...~Dec. 9
- Dickinson - Santa Fe Area...~Dec. 2
- League City-Friendswood-Kemah Area...~Nov. 28
- Clear Lake-Lower Houston Area...~Nov. 20

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Soils

- The gardener with the most compost wins!!!!...You need to be serious about adding organic matter to your soil.
- Make it, buy it... get the neighborhood clippings...A soil rich in organic matter and nutrients is essential for good tomato production.
- The interest in organic gardening has highlighted the importance of compost for amending soils, whether clay or sandy in texture.
- I use a lot of mushroom compost and cotton seed hull compost in my tomato beds because its easy to obtain. Mushroom compost quality is variable depending on how long it has been sitting. Fresh mushroom compost can be high in salts. But tomatoes are very salt tolerant and do well in mushroom compost.

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Soil Preparation

- A Soil Analysis would be very helpful in determining the type of soil you have as well as the pH and soil condition. (Should be done every 3 years by extension office @ Texas A&M.)The results of the soil test will reveal type, nutrient content and pH, as well as making recommendations for soil amendments. The cost is about \$14.
- Prepare beds about 2 weeks before planting. Add any amendments such as compost, manure, cotton seed hull and blood meal. Incorporate 8-12 inches of compost worked into the bed. This sets a nutrient foundation for quick plant establishment, vigorous foliage development and large fruit.
- Molasses is a favorite soil additive for organic gardeners. Serves as a food source for microorganisms.

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Soil Preparation

- Cottonseed compost (5-2-1) is one of the most readily available and cost effective sources of organic fertility. It helps to acidify the soil and also contributes mineral nutrients. Use at a rate of 4 lbs per 100 square feet that are fertile and up to 10 lbs if low.
- Soil pH should be near neutral 6-7pH. To lower pH, add soil sulfur or soil acidifier until first 6 inches has a pH near neutral.
- In most cases you will also want to add an all-purpose conventional fertilizer like 15-5-10 containing potassium and phosphorous . With a lot of organic matter in the soil, the judicious use of fertilizers will need to be considered.
- When planting transplants avoid using fertilizers with high nitrogen content, because these can result in a tall bushy plants that produce little fruit.

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Soil Preparation

- To till or not to till?...The less tilling the better. Most gardeners don't need a tiller. Even if you want one for the initial soil workup, you can rent one. However a small mini tiller can be useful for shallow incorporation of compost and fertilizer.
- Work the soil only when the soil moisture conditions are right:
 - Pick up a handful of soil and squeeze it; if it stays in a mud ball, it's too wet...If it crumbles freely, its about right.
 - Excessively dry soil is powdery and clumpy and may be difficult to work.
- Working excessively wet soils can destroy the soil structure, which can take years to rebuild!!!

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Preparing Your Beds



- Tomatoes will need loose rich easy to work soil, well composted with plenty of compost or manure (aged horse is better) enriched soil to get the best results. No heavy clays like we have in Galveston County.
- Best to have raised beds of a least 12 inch soil height that is well drained.
- We purchase a flower mix soil for our raised beds at the GCMG Discovery Garden.

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Selecting Store Bought Transplants vs Home Grown Transplants



- The tomato plant on the far left is store bought. Notice the weak root system it has. This occurs because it sat too long in a small container and was not watered or fertilized correctly. All of this will make it a slow grower.
- The one on the right is home grown. This type of root system will result in good healthy plant growth.

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Selecting Store Bought Transplants



- Avoid plants with blossoms or fruit already formed, especially when selecting plants early in the season.
- Advanced growth in small containers can be a tip off that the plant was over-fertilized as a seedling.
- Look for a plant that is tall as it is wide.

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Selecting Store Bought Transplants



- Select plants that fit the pot.
- Look for transplants with healthy green leaves and no flower bunches; avoid plants with yellow, thin, scraggly stems.
- Check for a sturdy central stem, which means the plant will likely be strong when it is transplanted into the garden.

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Selecting Store Bought Transplants



- Inspect leaves for curling or discoloration which could indicate a disease, poor lighting, under-watering, or over-watering.
- Check foliage for holes and damaged stalks.
- Look underneath leaves to make sure the plant isn't infested with pests.

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Prepping the Transplants



- Select your seedling transplants and remove the lower leaves



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Planting Your Transplants



- Dig a hole approximately 8" in diameter by 8" in depth.
- Place the soil removed in a container.
- A watering ring can be added.

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Watering Rings



- Because a tomato is 95 percent water, regular and frequent irrigation has a direct affect on fruit production and large fruit size.
- The rings can be made from a 4" tall X 16"-18" long strip of High Density Black Poly Lawn edging stapled.

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Planting Your Transplants



- Place plant in hole so that root ball is about in the 4-8 inch root zone area of the soil.
- Ensure that top of root ball is 1 - 2 inches below level of soil on top.

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Planting Your Transplants



- Add 3oz. of Sam's special blend fertilizer starter mix to the soil that has been removed to the container and mix well.
- (See Handout for Galveston County Master Gardener Sam Scarcella's special mix)

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Planting Your Transplants



- Backfill around transplant with soil from container with the fertilizer included.

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Planting Your Transplants



- Lift pot back out. Hole left will be a perfect fit for the transplant.

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Planting Your Transplants



- Remove pot from transplant and drop root ball down into formed hole.

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Planting Your Transplants



- Water in root ball with starter solution, such as Miracle Grow "Quick Start" starter solution. Note: nozzle has been removed on pump.
- Starter solutions minimize transplant shock. Also, rapid intake of nutrients assists the plant in quick recovery as new root and top growth takes place.

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Planting Your Transplants



- Continue backfilling in the hole with the remaining soil mix from container.
- Notice we have covered a portion of the stem above the root ball. Tomato plants are among the few plants that will develop additional roots when the stem is covered with soil.
- Larger root system = More Production.

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Planting Your Transplants



- Water in transplant well.

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Planting Your Transplants



- Planting is completed.
- Spray transplant with a Fungicide such as Daconil or Serenade every week and after a rain until the end of May.
- NEVER EVER LET THE LEAVES OF YOUR PLANT TOUCH THE GROUND.

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Protecting Your Transplants Against Cutworms

- Eggs hatch in early March through early June, and the larva spend three to five weeks chowing down on garden plants in preparation for the pupae stage.
- They burrow into the soil to pupate, emerging as moths in August through early September, after which they lay eggs on plant stems and soil.
- The eggs overwinter, and the process starts all over again in spring.
- If your garden is near large open fields, expect to fight cutworms.

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Protecting Your Transplants Against Cutworms



- Effect of the Cutworm?... Very simply – your transplants will die.
- Cutworms mow the plants down completely, and you will have to replant.

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Protecting Your Transplants Against Cutworms



- Cover the exposed stem by putting collars made of paper, cardboard, or plastic around transplant stems at planting.
- Collars should be 3 or 4 inches tall.

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Protecting Your Transplants Against Cutworms



- Push collars into soil until about half of the collar is below soil level.
- Tie it with string or tape.

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Planting Your Transplants Horizontally



- Planting your tomato transplants horizontally has the potential for a larger root system.
- Larger root system = More Production.
- In our test we generally find earlier fruit set from plants planted horizontally.

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Planting Your Transplants Horizontally



- Remove lower leaves.
- Lay your transplant in the sun about 2-3 hours before you transplant.
- The top portion of your transplant will naturally curve toward the sun.

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Planting Your Transplants Horizontally



- Dig a hole approximately 12" in diameter by 6" in depth with stake placed to hold the transplant stem.
- Place the soil removed in a container.
- Add 3oz. of Sam's special blend fertilizer starter mix to the soil that has been removed to the container and mix well.
- Place the root ball in the 4" zone.

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Planting Your Transplants Horizontally



- Backfill around ½ of the transplant with the removed soil from container that also contains Sam's special mix fertilizer.

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Planting Your Transplants Horizontally



- Remove pot from transplant and drop root ball down into formed hole.
- Water in root ball with starter solution, such as Miracle Grow "Quick Start" or starter solution.

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Planting Your Transplants Horizontally



- Install Cutworm collar.
- Continue backfilling in the remaining hole with the soil mix from container.

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Planting Your Transplants Horizontally



- Water in transplant well.

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Planting Your Transplants Horizontally



- Planting is completed.
- Spray transplant with a fungicide such as Daconil or Serenade.

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Watering Your Plants

- The key to keeping tomato plants healthy and hydrated is to maintain an even and consistent soil moisture level. Watering tomatoes in containers will differ from tomatoes in the soil.
- This means your plants should never dry out or live in sopping wet, swampy conditions. Evenly moist soil is your goal.
- The daily amount of water it takes to keep the soil around your tomato plants evenly moist depends on a variety of factors, such as the temperature, soil mixture and where you plant the tomatoes.
- If you keep your soil at the right moisture level, you'll be providing the correct amount of hydration.
- Uneven watering can cause blossom-end rot in tomatoes.

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Considerations When Watering Your Plants

- Weather conditions, plant size, mulching, growth rate, and the soil the tomato plant is grown in all affect the amount of water your tomato plant needs.
- Your plants require more water during hot, dry spells and periods of active growth than they do during wet weather or when the plants are young.
- How well the soil drains and its water-holding capacity also affect the amount of water they need.
- Healthy tomato plants that wilt excessively or soil that feels dry to the touch indicate that more water is needed.
- Observe your plants daily...they will talk if they need water!!!

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Watering Tomatoes Planted in the Soil

- Because tomatoes grown in the soil can send their roots deep into the soil when the surface soil dries, they often require less frequent watering than tomatoes grown in containers. However, deep watering to moisten the soil to the root level once or twice a week is preferred to daily light watering.
- Wetting the surface of the soil without saturating the soil at the root level encourages tomato plants to form roots near the surface of the soil, compromising the support system of the plant.
- As a rule, tomato plants require 1 to 2 inches of water a week.

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Watering Tomatoes in Containers

- Full-grown tomatoes grown in containers often require daily watering.
- The exact amount needed may range from a quart to a gallon or more, depending on the rate of growth, weather conditions and the pot size.
- As a rule, watering your tomatoes until water runs freely through the bottom of the pot and again when the soil feels dry to the touch 1 inch below the surface provides them with the water they need to thrive.
- Depending on the size of your planter, a 1" - 2" diameter perforated, plastic pipes may be needed inside to aid watering.

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Tomato Gardening in Containers



- 10 gallon white buckets/pots with good drainage (see holes in bottom) work well for this application. ...Larger pots 15-20 gal) are better. (5 gal buckets generally are a disaster)
- Container growing does have an advantage in that it allows you complete control over the growing medium and location.

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Tomato Gardening in Containers

- The key to successfully growing tomatoes in a container is to give your tomato plants a consistent amount of water and nutrients, which can be the biggest challenge for growing tomatoes in pots.
- The goal is to keep the soil moist, not wet. Too much water and your plants' roots will rot. Too little water and the soil will dry out and plants will get weak and will be susceptible to diseases.
- Full-grown tomatoes grown in containers often require daily watering, sometime twice a day. The exact amount needed may range from a quart to a gallon or more, depending on the rate of growth, weather conditions and the pot size.

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Tomato Gardening in Containers

- An ideal mix for container tomatoes consists of equal parts store bought synthetic soils like "Sunshine mix" of perlite, coarse sand, sphagnum peat moss and compost (Scotts potting soil will work). The ph needs to be around 6.5 and refreshed every year.
- Remember as well that the tomatoes in containers will need plenty of sun (at least 6-8 hours) and slow release fertilizer (Nutristar, Microlife, Ozmocote 13-13-13) every 2 weeks at the recommended rate.
- Clay pots and other porous containers allow additional evaporation from the sides and will require watering more often.
- Small pots tend to dry out more quickly than larger ones.

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Tomato Gardening in Containers

- Mulching and windbreaks can help reduce water requirements. But keep good air circulation for the best pollination.
- If you are away a lot, consider an automatic drip emitter irrigation system.
- Again as a rule, watering your tomatoes until water runs freely through the bottom of the pot and again when the soil feels dry to the touch 1 inch below the surface provides them with the water they need to thrive.
- Leach pots once a month with rainwater if possible.
- Determinate, Cherry, Patio or Container tomato varieties work best in containers.

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Tomato Gardening in Containers



Keep Away From Reflective Light



Self Watering Containers

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Planting Your Transplants



- Final step of your planting is installing your cages and protecting your transplants against freeze and damaging winds.
- Remember you will be planting your transplants in January and February...it's Texas and they may need protection.

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Protecting Your Transplants



- Stake your cages to keep them from falling over. Stake them now to prevent them falling over when fully grown.
- You can also install clear plastic covers over your cages to create a mini green house. (Clear 55 gal drum liners can work held up with clothes pins or twisted wire).

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Protecting Your Transplants



- Make sure the stakes used to support the cages are sufficiently strong enough.
- Check that the stakes are well driven into the ground.
- Ensure that the stakes are properly tied off to the cages.

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Protecting Your Transplants from Frost



- Advantage of wrapping your plants:
 - Provides 2° to 4° F of frost protection.
 - Protects from wind.
 - Keeps out insects.
 - Allows 85 to 90% light penetration.
 - Increases production by up to 30%.

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The Use of Hay and Manure



- Advantage of using hay on plants:
 - Provides weed protection.
 - Keeps soil moist.

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The Use of Hay and Manure



- Don't use Hay or Manure for at least 8 months after harvesting (2-4-D).
- Ensure Dow selective broadleaf herbicide Aminopyralid was not used.
Can last up to 2 year!!!

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Protecting Your Transplants



- It's a good idea to add a flap of plastic to the top that can be closed completely on really cold nights or during rain storms if you plant early.
- Open the plastic during the day to prevent overheating.
- You can remove all coverings around cages when temperatures remain above 60 degrees F.

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Protection Against Frost and Winds



- This 5 gallon bucket method works well - provided the transplants are at a stage where they can fit under the bucket.
- A string is attached to the bottom of the bucket and held up over the plant with a stick passed through the string and cage.

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Protection Against Frost and Winds



- When there is a need to drop the bucket over the plant, just remove the stick and lower the bucket.

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Protecting Your Transplants



- If you are staking your transplants you can use items such as milk or water jugs for protection.
- Be sure to uncover during the day to prevent overheating.

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Protecting Your Transplants



- A "wall-o-water" is a plastic circular cone encircling an 18" diameter area that is filled with water forming an insulating layer around the tomato plant.
- The idea is that the water absorbs the heat of the sun during the day and then releases it at night.
- Set up the "wall-o-water" at least a week before transplanting to help warm up and even the soil temp.
- It protects down to about 18° F.

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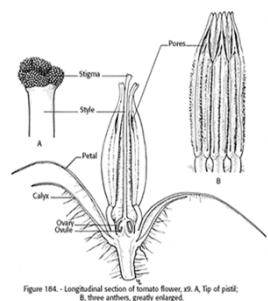
Temperature and Fruit Set



- Fruit-set is affected by night temperature.
 - Night temperatures below 50°F delay the time from pollination to fertilization causing flower drop.
 - Night temperatures above the mid 70's disrupt pollen shed often causing flower drop on large fruited varieties.
 - Some of the new varieties will pollinate at higher night temperatures.

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Pollination



- Tomatoes are wind pollinated.
- Insects pollinate through their wing action causing wind.
- To help better pollinate plants give the plants a good shake!!!

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Pruning Suckers



- Suckers grow in-between established branches.
- Suckers are pruned because they compete with the plant for vital nutrients, water, space and light.
- Allowing too many suckers to mature into a branch can result in a plant that produces a smaller overall crop.

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Pruning Suckers



- Use a proper sterile knife or pruning shear to remove. (use alcohol to clean)
- If growing Determinate tomatoes, pruning is counterproductive. They only grow to a certain height.



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Mulching Your Tomato Plants



- Spread 2 to 3 inches of mulch around the tomato plants five weeks after the transplanting date.
- This encourages healthy plants and large fruit development by conserving soil moisture.
- Keeps the plants' roots shielded from radical temperature fluctuations throughout the day.
- Blocks out weed growth that would compete with the plants for soil nutrients.

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Foliar Feeding



- Every week apply a foliar spray of a water soluble fertilizer with micro-nutrients. (Mix 3Tbsp to 24 oz of water)

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Foliar Feeding



- Soluble foliar feed for plants with micro nutrients.

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Side Dressing Plants



- Side dress plants through the growing season by working in 2-3+ tablespoons of a balanced nitrogen fertilizer (15-5-10 or 19-5-9) at the base of each plant.
- Draw a circle at the base where the drip line of the plant is located and apply side dressing.
- Start this when the first cluster of fruit sets and then again every two weeks.
- Discontinue here in Galveston County around mid June.

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When is a Tomato Ripe?



- GREEN-Stage 1: Tomato is light to dark green.



- BREAKER-Stage 2: Less than 10% of Tomato is changing color.



- TURNING-Stage 3: More than 10% but less than 30% changing color.



- PINK-Stage 4: More than 30% but less than 60% changing color.



- LIGHT RED-Stage 5: More than 60% but less than 90% can be a pinkish color.



- RED-Stage 6: More than 90% of the tomato is red.

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Ripening

- Tomatoes begin to ripen when they produce ethylene gas.
- Place in a warm semi-humid place out of direct sunlight... only the plants need sunlight...not the tomato...tomatoes ripen better in the dark.
- Expect as much as 1-2 weeks to fully ripen tomatoes after picking under normal temperatures of around 72 F degrees.
- If the area they are placed in is too cold, the tomatoes may never fully ripen or the result will be flavor-less tomatoes.

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Picking Time

- Maximum over all yield is greater if you pick the fruit before fully ripening. Otherwise the fruit production slows down.
- Once there is any show of color (stage 2 or 3) in the fruit the sugar content is at its peak so the flavor will be the same ripening on the counter as it would on the vine. (If you pick them earlier, especially before the gel has had a chance to develop inside, they will not ripen at all.)
- The other plus is that the faster they are off of the vine, the less chance of birds, insects and rodents getting to them.

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Picking Time



- Pick this one... it is just starting to turn pink. (Stage 3)

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Sorting and Ripening



- Always remove vines, twigs, leaves, etc. that might rub other tomatoes during the ripening process.
- If the tomatoes are dirty, wash them gently and allow to air dry.
- Keep an eye out for decay or mold. If you see any remove the affected tomatoes.

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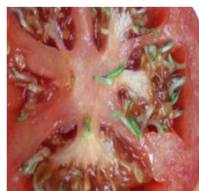
Sorting and Ripening

- Keep an eye out for vivipary.



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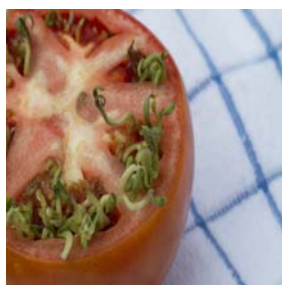
Vivipary



- Seeds germinating inside a tomato is called vivipary.
- It occurs in overripe fruit when seeds have reached maturity and the natural hormone, abscisic acid (ABA), is reduced. (that's in the gel inside the tomato)
- Then, seed dormancy is lost gradually. The tomato fruit allows vivipary since the seeds do not desiccate (dry out) in the moist environment inside the fruit.

98

Vivipary



- Some of the causes of seeds sprouting in tomatoes are long storage in cool temperatures (below 55 degrees), being overripe, potassium deficiency, over fertilization with nitrogen and again, being overripe... the predominant causes of vivipary.

99

Green Tomatoes

- A frost or freeze is coming and your plants are loaded with beautiful green tomatoes...What can you do???
- You have a number of options:
 - use the vine method to ripen them.
 - use the plastic or paper bag method to ripen.
 - use the cardboard box method to ripen.
 - use the jar method to ripen.
 - get a great recipe for cooking, baking or pickling green tomatoes.

100

Green Tomato "Vine Ripen Method"

- Lift the entire plant out the ground.
- Shake the dirt from the roots.
- Hang it upright to dry in a sheltered warm location, such as a garden shed or garage. (Keep out of extreme sunlight)
- Tomatoes will still ripen almost as well as on a live vine that was outside.

101

Green Tomato "Plastic or Paper bag Ripening Method"

- Place 3-4 green tomatoes with 1 banana in the bag. (Banana should be green on tips.)
- Punch a few small air circulation holes if using plastics bags.
- Store in a semi humid area away from direct sunlight.
- Keep an eye out for decay or rot. If you see any, remove the affected tomatoes.



102

Green Tomato "Cardboard Box Ripening Method"

- Line the bottom of the cardboard box with multi layers of newspaper.
- Place a layer of tomatoes in the box next to each other. (Can wrap each one separately.)
- Place a second layer of newspaper on top and close the cardboard box lid.
- Place the box in a cool slightly humid room away from light.
- You can add a banana but the tomatoes are likely to ripen anyway as they release their own ethylene and influence others.



103

Green Tomato "Jar Ripening Method"

- Find a lid and jar big enough to hold a banana and a number of tomatoes.
- Place the banana and tomatoes in the jar.
- The tomatoes should be placed so as not to bruise one another. Leave some air space between them. Do not overfill the jar.
- Close the jar with the lid and place the jar out of direct sunlight.
- Check the jar often for any moisture buildup that could cause the tomatoes to rot. Open the lid if buildup is seen.

104

Other Ripening Methods



Day 1



Day 3



Day 4

105

Cleaning Up For The Next Crop



106

Cleaning Up For The Next Crop

- We are fortunate to have a long growing season here in Galveston County, but the summer temperatures can bring a halt to the tomato harvest.
- Trying to keep the spring planted tomatoes through the summer is not very productive so if you plan on having fall tomatoes plan on replanting. This will require removing the old plants and raking up the old plant leaves and other debris.
- Fall tomatoes are not always successful with trying to beat the first frost. We recommend if planting fall tomatoes plant with the cherry or the "early season" varieties like "Early Girl", "Bush Early Girl" or "Parks Whopper".
- Here in Galveston County plan to plant sometime in August.

107

Rotating Crops

- Everyone would like to have enough room to rotate crops so we don't have to plant tomatoes and close relatives (Peppers, eggplants, potatoes and tomatillos) in the same spot each year.
- We just have to do what we can...plant the area in sweet corn every few years, or let it lie fallow, or plant that area with a legume (southern peas) every few years.
- We also suggest performing solarization on the beds in July and August. Use clear plastic and use two layers.
- Sometimes planting disease-resistant varieties and adding more compost and fertilizer each year are the best we can do.

108

Early Blight Disease



- Early Blight Disease on tomato plants is indicated by black spots and yellowing leaves.

109

Early Blight Disease



- If left to progress Early Blight will reduce production and then kill the plant.

110

Early Blight Disease



- Reduce Early Blight by trimming lower leaves and watering the plants early morning and at ground level not the entire plants.

111

Protection Against Pathogens

- KEEP THE BRANCHES AND LEAVES OFF THE SOIL.
- Spray with a fungicide, like Daconil or Serenade, a day after the foliar spray is applied.
- Most fungicide is easily washed off with water. So we recommend spraying a fungicide weekly in our area and also after a rain.

112

Protection Against Pathogens



113

Protecting Against Birds



114

Protecting Against Birds



- Install the bird deterrents no later than 2-3 weeks prior to establishing the first ripe fruits.

115

Protecting Against Birds



- Once birds find your tomatoes they come back almost every day.
- You may have to resort to bird netting for protection.

116

Protecting Against Rabbits and Other Rodents



117

Protecting Against Squirrels



- These guys are pretty darn smart!!!
- Try mechanical protection with chicken wire.

118

Protecting Against Squirrels



- Try Chemical warfare with "predator urine"
- Get a cat or dog.
- Last resort ...shoot them or MOVE!!!

119

Wishing You Much Success as it's difficult to think anything but pleasant thoughts while eating a homegrown tomato!



120

And...Have Fun!



123

Questions next, but first...

Don't forget to complete
an evaluation form.

Thank you for your input.

122

Any Additional Questions?



123

Disclaimer

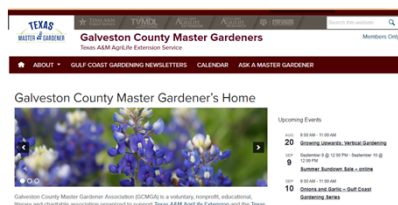
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Thank You!

The Galveston County Master Gardener Program
Texas A&M AgriLife Extension Service - Galveston County
Providing volunteer support in planning and offering educational programs that serve the needs of our county residents



Visit our website by searching *Galveston County Master Gardeners* or
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This presentation is developed
in support of educational programs provided by:

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