Growing Tomatoes in Pinellas County

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Getting Started

Sprouting Seeds vs. Purchasing Transplants

Sprouting seeds:

- Requires planning ahead
- Requires additional supplies
- Greater variety
- Less disease pressure
- Less expensive

Sprouting Seeds vs. Purchasing Transplants

Purchasing Transplants:

- Convenient
- Good for small gardeners
- Might have underlying disease
- Might have insects
- Inspect transplants carefully

Tomato Disease Resistance "code"

V = Verticillium wilt

F = Fusarium wilt race 1

FF = Fusarium wilt race 1 & race 2

N = Root Knot Nematodes

A = Alternaria stem canker

T = Tobacco Mosaic Virus

St = Stemphylium (grey leaf spot)

TSWV = Tomato Spotted Wilt Virus

TYLC = Tomato Yellow Leaf Curl Virus

Tomato Growth Types

- **Determinate** - is shorter, and produces fruit over a four to six week period.
- **Indeterminate** – continue to grow, flower, and produce fruit throughout the season.
- **Indeterminate Short Internodes (ISI)** - combines the controlled growth of a "determinate" with the continual production potential of an "indeterminate."

Heirloom vs. Hybrid

Heirloom:

- Can save seeds
- Open pollinated
- More flavorful
- Usually more disease pressure
  - Is this true in small gardens?
  - Grafting to sturdier root stock
- Lower heat tolerance
- Fruit has shorter shelf life

Heirloom vs. Hybrid

Hybrid

- **Productivity -** harvest more tomatoes.
- **Disease-resistance**
- **Strength**
- **Consistency**
- **Better shelf life**
- **Flavor** - not as flavorful as heirlooms.
- **Seeds not true to parent plant**

Starting Seeds

- Choose container(s) – holes in bottom
- Use sterilized garden soil or seed starting mix
- Fertilization – dilute liquid fertilizer, fish emulsion, or add very small amount to soil
- Sow seed - scatter seed over firm, moist surface; lightly cover with soil, then sprinkle with water
- Keep moist and in a warm place after seeding

Starting Seeds

- `Damping-off‘ - wet the base of young plants with Neem oil
- Thin to 2 - 3 inches apart when 1 inch tall
- Resetting into larger pots produces vigorous transplants
- Move plants outdoors during day (if weather is warm) – not in direct sun
- Ready to plant in 4 – 5 weeks after sprouting

Choosing Transplants

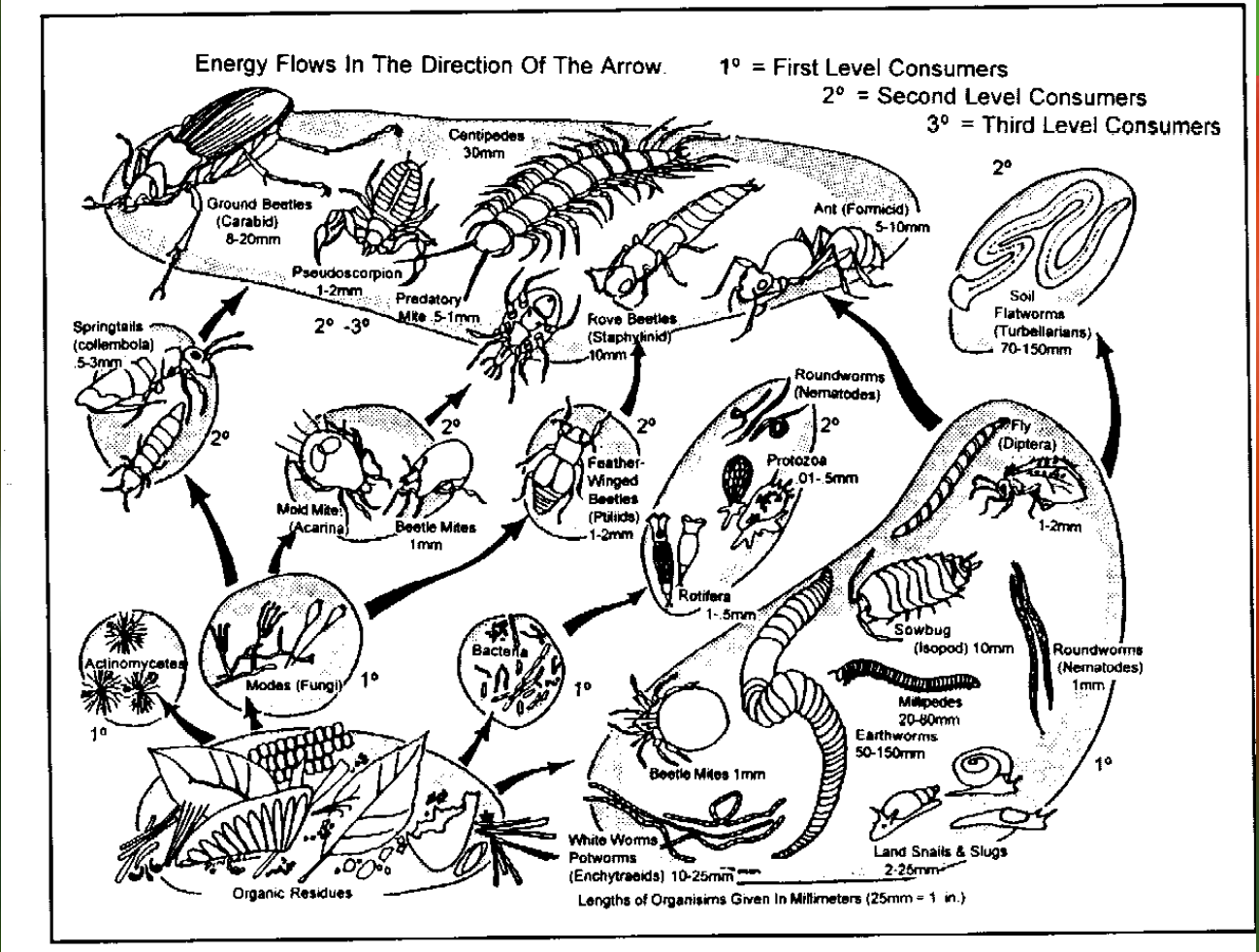
- Stocky with stout stem
  - Plant taller plants deep
- Well formed perfect leaves
  - Curled and stunted at top – TYLCV
  - Mottled leaves – TMV
- Look carefully for insects
- Well formed root system – gently remove from pot.

Florida's Sandy Soil

- Poor water holding capacity
- Poor nutrient holding capacity
- Low in organic matter
- Prone to leaching

Soil…

- Healthy soil is alive with organisms



Raised Beds

Soil-less Mixture

– Materials that:
  - Absorb and retain moisture
  - Allow excess water to drain

– Mix in 1/3 compost

Amendments for Soil

“Feed the soil and the soil will nurture the plants”

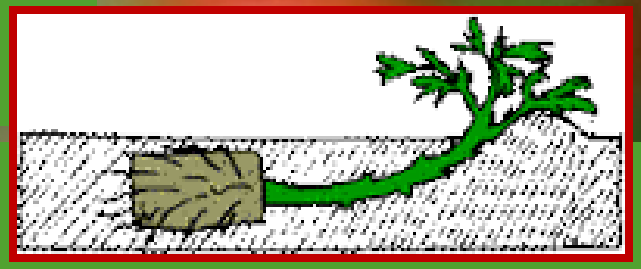
Organic Matter

- Compost
  - Composted in a bin
  - Purchased
  - Composted in the bed
- Seaweed
- Peat
- Manure

Organic Matter

- Improves soil-
  - water holding capacity
  - condition and structure
  - resistance to erosion
  - pH buffering
- Supports living soil organisms
- Reduces rate of nutrient release
- Provides slow release nutrients
- Suppresses plant disease

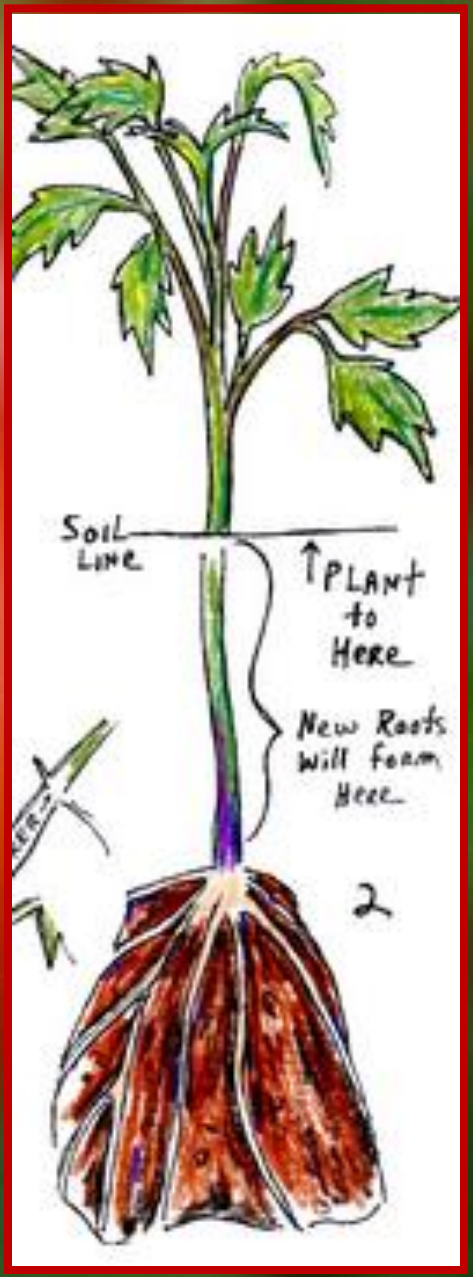
Planting



- Best soil pH is 6.2 - 6.5
  - Need lime if pH below 6.0
  - Need Iron & Manganese if pH is above 6.5
- Compost can be mixed into transplant hole
- Can be killed by frost
- Plant after rain, on cloudy day, or late afternoon
- Plant deep – up to first set of leaves
- Planting dates: Jan.–March or Aug.-Sept.

Planting

- Water at planting with a starter solution of 1 to 2 T of 6-8-6 fertilizer dissolved in 1 gal. of water
- Shade from direct sun for 2 – 4 days
- Spring planting – January - March



Care

- Stake at planting time to avoid damaging roots later – or use a tomato cage
- Remove suckers at leaf axils or not?
- Water plants thoroughly once a week - Tomatoes need 1-2 inches of water/week
- Drip irrigation is best – can reduce fungal disease
- Use mulch and keep weeds pulled
- Prune off bottom leaves

Fertilizing
Chemical vs. Organic

Chemical Fertilizers

- For every 10 square feet of soil, 1 pound of 6-8-8 or similar fertilizer
- Apply one half at planting time
  - 2 bands located slightly below and 2 to 3 inches to the side of the row
- 3 weeks after planting apply 1/3 of the remaining ½ as a side dressing
- After 3 more weeks, apply the remaining at 7 to 10 day intervals.

Fertilizing
Chemical vs. Organic

Organic fertilizers

- Organic blends - Peggy Green (local), Gardener's Supply, Espoma
- If manure is used, broadcast and mix well into the soil 4 - 8 weeks prior to planting.
- Fish emulsion– use as a spray or mixed in watering can – may also mix with Neem for spraying
- Kelp/Seaweed emulsion – fertilizer and growth enhancer – apply kelp meal before planting – use spray monthly

Mulching

Mulch:

- Holds moisture in soil
- Helps control weeds
- Keeps fertilizer from leaching
- Harbors beneficial insects (organic mulches)

Types of mulch:

- Organic (leaves, straw, lawn clippings, etc)
- Plastic
  - Black (recommended for home gardeners)
  - Red (mixed results from trials at UF)

Pests

Major pests

- Worms
  - cutworms
  - hornworms
  - fruit worms
  - pinworms & leaf miners
- Aphids
- Whiteflies
- Stink bugs and leaf-footed bugs
- Nematodes

Pest Control

- Biological controls – natural beneficial insects
  - Above ground predators – lady bugs, lacewings
  - Ground level predators – ground beetles, spiders
  - Parasites – insects that lay eggs on/in pest insects
  - Bacteria/fungus/nematodes - *Bt*
- Mechanical controls
  - Floating row covers
  - Sticky cards (yellow, blue or white)
  - Barriers
  - Hand removal
- Cultural controls
  - Companion Planting (Intercropping)
- Solarization – soil borne pests

Pest Control

- **Organic pesticides**
  - *Bacillus thuringiensis* (*Bt*)
  - horticultural oils – Neem, other plant based oils
  - Insecticidal soap
  - Copper
  - Pyrethrums
  - Rotenone
  - Spinosad
- **Chemical pesticides**
  - Carbaryl – Seven
  - Malathion

Diseases

Fungal

- Early & Late blights
- Wilts

➢ Bacterial

- Bacterial spot

➢ Viruses

➢ Tobacco mosaic virus - TMV

➢ Tomato yellow leaf curl virus - TYLCV

Disease Control

- Crop rotation – rotate solanace with crucifers or beans
- Sanitation
- Rouging

Fungal diseases – treat proactively

- Neem oil
- Copper and/or Sulfur fungicide
- Garlic spray/Milk spray – questionable research results

- Bicarbonate salts – 0.5% solution – used to treat fungus already on leaves.
- Summer Soil Solarization

Problems

Blossom end rot

- Too little available Calcium
- Too much or too little water
- Severe pruning
- Spray plant with a solution of 4 T of Calcium Chloride mixed in 3 gal. of water twice weekly, 1 qt./plant

Problems

Blossom drop

- night temperatures above 70°
- excess nitrogen
- too much shade
- over-watering
- flower thrips

Fruit cracking/splitting

- heavy rain after period of dry weather
- usually nearly ripe fruit
- pick and allow to ripen inside

Choosing Varieties

- What is your objective
  - Eating fresh
  - Making sauce
  - Canning
- Look to UF for varieties researched and found good for Florida
- Choose disease resistant cultivars
- Plant a variety

Propagation

Rooting suckers

- Remove well formed suckers
- Place in sterile potting soil
- Water well
- Place in bright shaded area
- Keep moist (they might wilt the first few days)
- Should have rooted in about 3 weeks
- Move into sun slowly
- Ready to plant in garden in 6 weeks

Propagation

Saving Seeds

- Must be open-pollinated varieties not hybrids
- Choose well ripe fruit from best plants
- Scoop out seeds and place in jar of water
- Allow to ferment for 4 -5 days
- Pour off scum from top – good seeds sink
- Rinse seeds in strainer
- Dry completely on paper towels (2-3 weeks)
- Place in envelopes and label
- Store in airtight jars

QUESTIONS??