

Ten Steps to Your Best Tomato Year Yet

Seminar Notes

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by

Bill Thorness

Author, [Edible Heirlooms: Heritage Vegetables for the Maritime Garden](#)

Do you spend a lot of time and money on growing tomatoes and then have disappointing results? People go to great lengths for this Holy Grail of the kitchen garden, and yet the tomato has a reputation as being one of the most challenging hot-season crops to grow – especially if you have a too-cool maritime microclimate. But you don't have to settle for a "summer of impatient waiting"! Here are 10 techniques to try in the quest for your best tomato year yet.

10 steps:

1. Choose the right variety
2. Get a great start: Start from seed, pot up and pamper
3. Creating beds and building soil
4. Fertilizing
5. Planting and protecting: Use season extension techniques
6. Wise watering
7. Pruning and trellising
8. Battling pests
9. Preventing diseases
10. Hauling in the harvest

Choosing varieties

What grows well here?

- Select by the season: Short season and early ripening
- Cherry tomatoes are very reliable
- Longer season can be great - if you do them right
- What do you like (slicers, sauce, salad, garden snacks) and how much?

Determinate vs. Indeterminate

- Det are bush type, not vining, or not very vigorously; Fruit ripens at once

- Indet are vining, send up many shoots, trim to 4 or 5 for best production; product fruit continuously until frost
- Most cherry varieties are indeterminate

Bioregionally grown – plants suited to the region

Varieties:

Before talking about varieties, let's define a bit more terminology about tomato types:

- Cherries up to 1" juicy, seedy, sweet
- Salad 2" juicy, seedy
- Slicing 3" denser, fewer seeds
- Sauce, 2-3" elongated, dense, drier, concentrated flavor, fewer seeds
- Beefsteak 3-4" dense or open flesh, juicy, seedy, late season

Cherries: Yellow Pear, Cherry Roma

- Other cherries: Sweet Million, Sungold, Red Grape, Red Fig, Chadwick's (almost a salad, grown at UC Santa Cruz, where there's a garden named after him)

Extra early: Stupice – Czech, potato-leaf, 2 inch fruit, (ind)

- Other early ones: Oregon Spring (det), Legend (det.), Siletz (det.), Early Girl (ind), Black Prince (ind), Glacier (det)
- many with black or purple in their names are shorter season.
- also many from Russia like Moskovich and Cosmonaut Volkov

Odd colored: Green Zebra – heirloom, bred from an old English variety, salad, prolific (ind.)

- Other odd colored: Mr. Stripey (like Zebra, ind.), Black Krim (ind.), Cherokee Purple (ind., bigger), Taxi (yellow, of course; det); Jaune Flamee (ind, apricot color), Silvery Fir Tree (unique foliage, red fruit, great for pots; det.)

Sauce: Principe Borghese (det), Roma (det), San Marzano (ind), Amish Paste (ind., longer season)

Main season (longer): Costoluto Genovese (ind) – billowy accordion, rich, juicy

- Other main season: Celebrity (det), Mortgage Lifter (ind), Brandywine – many strains (ind)

Getting a great start

- Know your microclimate: SF fog, coastal, foothills, warmer inland

- Cooler temperatures/fog can slow down days to maturity, cause tomatoes with thicker skin and less flavor
- Grow organic? Health, environment, required in some community gardens
- Site layout/sun exposure – 6 hours of sun a day at least. 8 is better. Your sunniest spot.
- Track sun, check shadows from buildings, trees. Don't build bean teepees to shade it.
- Crop rotation: consider where they were last year – 3 year cycle. More on this later.
- Keep notes on what works this year.

Creating beds

- Bed layout: easy to reach to center without stepping on garden soil
- Arrange tomatoes to not block sun from each other
- Plan for tall trellises and picking from cherry tomato plants

Type of bed:

- Tomatoes love raised beds, because of heat.
- Raised beds can just be built up on the flat garden and have sloped sides, or be containers of soil.
- You can use other types of containers, like large pots, at least 5-8 gallon. Replace soil in large pots every year (for fertility and easy crop rotation)
- Standard raised bed is made of untreated wood with posts on the corners. Use a high one if you have mobility or back problems.

Building soil

- What is healthy vegetable garden soil?
 - Rich in organic matter
 - Drains well
 - Has good “tilth”
- What is organic matter?
 - Something that adds to the tilth of the minerals in the soil
 - Compost, mulch, cover crops
- Increase organic matter:
 - Chop in cover crops
 - Dig in or top-dress with your own compost or commercial compost
 - Use “sheet mulching” technique on beds that are fallow
- Tomatoes love soil with compost, for warmth and water retention.

Using fertilizers

- Add a balanced organic fertilizer.

Know your NPK

- o Nitrogen promotes leaf growth
 - o Phosphorous promotes flowering and fruiting
 - o K is for kalium, Latin name for potassium, aka potash, promotes root and stem strength
- Compost and worm castings are great balanced fertilizers, as is seaweed and some fish meal products.
 - Naturally occurring fertilizers are made from natural ingredients and trace minerals
 - Trace minerals are important, so use a natural occurring organic fertilizer with slower release.
 - Liming the soil (well prior to planting) also adds trace minerals as well as re-balances the pH of the soil – acidity.
 - Synthetic fertilizers are often petroleum byproducts and are targeted to do one thing, not balanced.

When and how much to fertilize:

- As seedlings, use fish emulsion every few weeks or so before planting out; higher nitrogen, boosts leaf growth
- When planting out, 1/4 cup of balanced fertilizer in hole, or worm castings

Planting

- Seeds vs. starts – With seeds, you control the growth from day 1. You can grow unusual varieties
- Keep your seedlings or starts healthy – proper watering, sun, potting up.
- Bottom heat while germinating, then reduced. 6-8 hours of sun in window. Regular water, but not soaking wet.
- Avoid “damping off” – wet stems will rot.
- “Pot up” from flats to 4” to gallon to keep plants growing, develop great root system
- “Harden off” – get plants acclimated to outdoor temps and wind before planting.

- Temps: Need nighttime temps above 45-50 degrees (late May-early June) to plant out
- Plant out on a cloudy day – less stress or transpiration
- Plant deeply to encourage advantageous root growth. Also deeper roots = less water needs
- Proper spacing:
 - o 18-24 inches for determinate plants, 6 inches wider for indeterminate ones
 - o 3-4 feet between rows, because they'll spread 1-2 feet on each side of their stems

Watering and pruning

- Describe good watering practices and drip irrigation.
 - o Water less frequently, more deeply.
 - o How to tell if you need to water: finger test (dry to 1 knuckle, time to water; after watering, dry to depth of finger).
 - o Caution: potato-leaf varieties can look droopy.
- Dripworks (Willits) a great place for drip irrigation. Lee Valley Tools also sells it.

Trellising and Staking

Use strong, sturdy supports, not the small, round wire cages – they just don't work.

- Ladders – V-shaped or hinged. Supports every few inches. Powder-coated.
- Stakes – bamboo, green plastic, powder-coated or galvanized steel
- Trellises – bamboo lashed together, steel, many styles. Secure into ground with stakes.
- Cut indeterminate vining tomato plants to 3-4 main stems, train them up trellises with space in between stems.
- Stake determinate bush tomato plants to a stake set near the main stem. Tie loosely to main stem at intervals.

Pruning

Get better production and earlier ripening by selectively pruning your tomato plants.

- Open up the plants for better air circulation, which will help prevent blight
- Allow more sun to ripening tomatoes. Caution: don't prune so much that your fruit will burn in the hot sun. Create "dappled shade" within the plant.

- Prune off suckers that grow up at the V-shaped intersection of the main stems and the branches. This concentrates the plant's energy into a strong branching system. Continue to monitor and pinch off suckers as the plant grows.
- After mid-summer, when it will be too late for any newly formed fruit to size up or ripen, begin to prune off the flowering tips of the plant. This will concentrate its energy into the existing fruit.

Pest Control

The prime suspects:

- Slugs and snails
 - o Handpick and destroy
 - o Use copper barriers
- Flea beetles - small dark beetles that jump like fleas, cause round holes in leaves
 - o Use floating row cover, spray with neem oil
- Tomato hornworms – white striped, green caterpillar
 - o Handpick and destroy
 - o Plant dill near tomatoes to attract it
- Aphids – tiny white or black, usually seen as a mass, cause shriveled leaves
 - o Wash off with water spray
 - o Wait for ladybugs to take care of them
- Spider mites – tiny red specks, underside of leaves, cause yellow speckling
 - o Wash off with water spray

Beneficials: Soldier beetles, garden spiders, ladybugs and other beneficials will be attracted to the pests on your plants. Learn to recognize beneficial insects and know what conditions and food they like, then provide a good environment for them to thrive. Let them be your pest control.

Diseases:

- Blossom end rot – spreading from blossom end (bottom) of fruit
 - o Caused by various bacteria and fungi; plants with calcium deficiency are most susceptible
 - o Also caused by irregular watering or badly draining soil
 - o Treat with bone meal, maybe not effective until next season; some people put crushed eggshells in hole when planting
- Blight – plant stops growing, leaves and branches withers, turn brown, may rot.
 - o In tomatoes, it's late blight, a fungus called Phytophthora.
 - o Growth conditions are encouraged by moisture sitting on the leaves and stems.
 - o Starts with water-soaked spots on lower leaves, then blotches on underside of leaves, maybe sunken areas. Then browning and shriveling of leaves.
 - o It will spread and take over plant.
 - o Prune off and destroy affected plant material; do not home compost it.

- Tobacco mosaic – don't smoke around your plants

Prevention is the best defense: grow healthy plants with good immune systems. Provide good growing conditions (fertile soil, weed-free around the plant, proper spacing and air circulation, mulch on topsoil that holds water, proper watering practices (at base of plant, no splashing, drip irrigation best).

Last resort:

- Organic fungicides (look for organic certification on the label)
- Compost tea, neem oil, homemade concoctions with vinegar or baking soda, garlic or herbs

Solutions to common problems

Sanitation – remove and destroy diseased plants, clean tools, control compost

- Diseases can be spread by tools, so clean tools after use.
- If you suspect disease, disinfect your tools. Bleach is commonly recommended (or PineSol or Lysol) but it will corrode your tools, so wash with plain water and dry thoroughly.
- Crop rotation – 3 years
 - o Why practice it? Keeps down population of pests and disease organisms in the soil, does not deplete soil fertility as greatly.
 - o Also practice “right plant/right place” – stress comes from plants in the wrong place
 - o Family rotation (Solanaceae, also potatoes and eggplants)
 - o Fertility rotation (leaf, root, flower fruit)

Hauling in the harvest

- Prune to 2 or 3 main vines – and open vines to more sun
- Only water once a week after first fruit sizes up – this causes “water stress”
- Cut off flower bracts and growth tips after most fruit has set (except cherries)

Harvest

- When fruit begins to soften around the shoulders
- Two-handed picking method for children – can save your cherry tomato vine
- Post-harvest ripening: in paper bag, cool area, check every few days
- Preservation: Freezing, canning, drying
 - o Ideas: green tomato salsa, tomato jam, tomato figs, tomato sauce