

IDENTIFYING & MANAGING
TOMATO
DISEASES ORGANICALLY



by Petra Page-Mann





LET'S BE HONEST!

If you're growing tomatoes in the Northeast, you're likely growing tomato diseases, as well.

I'm honored to share how to identify the four most common tomato maladies here in the Northeast and what to do next!

And Friends, there's good and bad news, to be sure, and there's ugly news, too. A little knowledge goes a long way both in prevention as well as management, so....

...let's dig in!



BLOSSOM END ROT

Blossom-End Rot is a vast disappointment that is both manageable & preventable. Affecting paste & roma more than other tomato types, blossom-end rot is mostly an issue with the first set of fruit, quickly disappearing once conditions shift for the better.

SYMPTOMS:

Black, leathery lesion at the blossom-end of the fruit, often visible when fruit is still green & quite small, becoming larger as the fruit matures. It may also begin quite mushy, depending on the season.

CAUSE:

Calcium deficiency. More accurately, it's a water deficiency. Here is how I visualize it: Calcium is a huge ion while others are small, so calcium needs more water to be absorbed & moved around plants. Think of a calcium ion as a massive freighter, needing way more water to move about than a kayak, which is the relative proportional size of a nitrogen ion. If your plants have experienced any level of drought, they are more susceptible to blossom-end rot



BLOSSOM END ROT

continued

MANAGEMENT:

Strip & compost affected fruits; they never recover. Water evenly & deeply. Spraying dilute fish emulsion or compost tea will make additional calcium available for your tomatoes, as well. Egg shells are long-term rather than short-term solutions; your compost is the best place for them.

PREVENTION:

Water evenly & deeply in periods of hot, dry weather. Early morning is best, minimizing moisture on leaves and stems. Spray dilute fish emulsion ideally every week, though sometimes is better than no times.

SEED SAVING:

Though blossom-end rot is not seed-borne, it's best to only save seed from unblemished fruits.



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EARLY BLIGHT

Early blight is disappointing to spy and can decimate your harvest though, when identified early and managed well, you'll enjoy many weeks of production, so stay vigilant! Concentric rings are key for a positive ID.

SYMPTOMS:

Look for dark brown lesions of early blight have diagnostic concentric rings, like a coffee-stained topo map. You'll find the lesions on the lowest leaves, stems and fruit first.

CAUSE:

Early blight is caused by a fungus, *Alternaria solani*, which overwinters in southern climates that don't freeze. Early blight travels North on the wind each summer, so fortunately it doesn't survive the winter in here in the Northeast.



EARLY BLIGHT

continued

MANAGEMENT:

As soon as you identify early blight on your tomatoes, strip each affected leaf and fruit and securely close the bag you put them in. Send them, without second thought, to the landfill. Resist burying them in your compost, since they'll continue to sporulate and infect other tomatoes for miles around. If you've caught early blight early, you'll likely enjoy another three to four weeks of production.

PREVENTION:

Though there is no silver bullet, sowing disease-resistant varieties makes all the difference. Our early blight resistant varieties include Brandywise, Summer's Sweetheart, Chiapas and Coytoe. Enjoy our 5 Keys to Preventing Tomato Disease for more tips on how to surround yourself with abundance!

SEED SAVING:

Early blight is, alas, seed-borne. Resist the temptation to save seeds from plants affected by early blight.



LATE BLIGHT

Late Blight is, without question, the most disastrous tomato disease here in the Northeast. It affects potatoes as well as tomatoes, so stay vigilant! Usher every affected tomato out of your garden, since they can overwinter late blight and devastate your harvest the following season.

SYMPTOMS:

Look for black or dark brown lesions form on the lowest leaves, stems and fruit. These lesions often ooze and are not confined to the vein patterns of the leaves. If the underside of an affected leaf has a powdery appearance, the fungus has progressed to sporulation and you definitely have late blight. If you see no powdery sporulation, tuck an affected leaf into a closed plastic bag with a moist paper towel overnight. If it sporulates, you have late blight. If it does not, you likely don't.

CAUSE:

Late blight is caused by a fungus, *Phytophthora infestans*, whose Latin name translates to 'all-consuming plant destroyer.' It overwinters in southern climates that don't freeze, traveling North on the wind each summer. It doesn't overwinter in your garden, thank goodness, though it will on living potato tuber tissue in the ground, so be sure to send all paffected plants to the landfill.



LATE BLIGHT

continued

MANAGEMENT:

Pull affected plants and twine trellising immediately, securely closing the bag you put them in. Send them, without second thought, to the landfill. Remove stakes or cages that held the diseased plants and rinse them in a dilute bleach solution to kill any remnant spores. Just to play it safe, harvest every potato you can and pull any volunteer potatoes the following spring.

PREVENTION:

Though there is no silver bullet, sowing disease-resistant varieties makes all the difference. Our early blight resistant varieties include Brandywise, Summer's Sweetheart, Chiapas and Coytoe. Enjoy our 5 Keys to Preventing Tomato Disease for more tips on how to surround yourself with abundance!

SEED SAVING:

Late blight only overwinters in living tissue, so save the seeds from fruits of suffering plants with confidence, the earlier the better.



SEPTORIA LEAF SPOT

Catch Septoria early and you'll enjoy an extra month of harvest! Scouting for potential diseases and nutrient deficiencies will go far in surrounding you with abundance.

SYMPTOMS:

Septoria leaf spot can look similar to early blight, but its dark brown lesions lack the concentric rings and are more small and 'spotty.' Lowest leaves are affected first.

CAUSE:

Septoria leaf spot is caused by yet another fungus, *Septoria lycopersici*. Similar to early and late blights, septoria overwinters only in southern climates that don't freeze, traveling North on the wind each summer. Fortunately, it doesn't survive the winter in here in the Northeast. Nonetheless, bring all your dead tomato vines to your compost in fall: they can overwinter undesirable pest insects in your garden to emerge the coming season.



SEPTORIA LEAF SPOT

continued

MANAGEMENT:

Similar to early blight, as soon as you identify septoria on your tomatoes, strip each affected leaf and fruit and securely close the bag you put them in. Send them, without second thought, to the landfill. If you've caught septoria leaf spot early, you'll likely enjoy another three to four weeks of production.

PREVENTION:

Though there is no silver bullet, sowing disease-resistant varieties makes all the difference. Our early blight resistant varieties include Brandywise, Summer's Sweetheart, Chiapas and Coytoe. Enjoy our 5 Keys to Preventing Tomato Disease for more tips on how to surround yourself with abundance!

SEED SAVING:

Septoria is not transmitted by seed, so save the seeds from fruits of suffering plants with confidence, the earlier the better.





DISEASE OR DEFICIENCY?

It can be tricky to tell! Here are a few keys to keep in mind.

TIMING

Nutrient deficiencies can happen any time; many diseases generally arrive 6+ weeks after planting. Here in Zone 5, we don't anticipate blight until late July or August, though climate change is bringing them earlier each season.

COLOR

Purple is generally a sign of deficiency, as is green turning yellow without brown/black spots or margins.

HOW TO GET A POSITIVE ID

The quicker you get a confirmed ID, the better! Cornell and Fruition Seeds both share extensive photos & other resources; email photos of your suspicions, petra@fruitionseeds.com, as well.

EITHER WAY!

Nutrition makes all the difference & soil building is key to sustained abundance across the seasons. Compost is gold and fish emulsion is amazing! We share fish emulsion as well as soil-building, slow-release organic fertilizers at www.fruitionseeds.com.



DIRECTIONS: SHAKE BEFORE USE. PREPARE APPLICATION AT A TIME DILUTE 1 OZ IN 1 GALLON OF WATER. STORE IN DARK AT ROOM TEMPERATURE.

ORGANIC FISH & KELP FERTILIZER
FOLIAR FEED & SOIL DRENCH

NPK FOLIAR FEED SPRAY ALL LEAVES EVERY 2-3 WEEKS IN EARLY EVENING OR DRENCH AT BASE OF STEM UNTIL SOIL IS SATURATED.

5 KEYS TO PREVENT TOMATO DISEASE

Beyond disease resistant varieties, reducing humidity and increasing air flow will surround you with abundance. Enjoy our blog with the full story plus video tutorials at www.fruitionseeds.com

1. START WITH DISEASE-RESISTANT VARIETIES.

see next chapter!

2. INCREASE AIR FLOW

~ Plant tomatoes a minimum of 2 feet apart

- ~ Keep weeds at a minimum: they can be vectors for disease & their presence decreases air flow
- ~ Trellis early & often to let air circulate throughout your plants. Trellising also encourages fruit to ripen more quickly and makes fruit easier to harvest
- ~ Pruning 'suckers' like the one below, especially early on, reduces the density of foliage and increases airflow. Enjoy our blog about tomato pruning to learn more!



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5 KEYS TO PREVENT TOMATO DISEASE

continued

3. REDUCE LEAF HUMIDITY

- ~ Only water the soil, not the leaves
- ~ Only water in the morning when excess leaf moisture has the greatest chance to evaporate in the heat of the day.
- ~ Grow under plastic (greenhouse, high tunnel) when possible. Greenhouses offer more heat which will ripen more and earlier fruit than field tomatoes, in addition to reducing humidity to reduce the spread of disease.

4. MULCH

- ~ reduce your need to water (tomatoes need less water than you think)
- ~ reduce risk of soil-borne diseases being splashed on your plants from rain or overhead watering.

4. SCOUT FOR DISEASE

Cultivate your inner garden detective! When you find colors and textures that seem suspiciously pathogenic::

- ~ immediately identify by accessing Cornell and Fruition Seeds' resources.
- ~ Remove infected leaves/plants accordingly. Be sure to clean your hands and sterilize your tools before returning to your garden.



DISEASE RESISTANCE

VARIETY GUIDE

[late blight + early blight + septoria leaf spot resistant]

BRANDYWISE

75 days to maturity | indeterminate



CHIAPAS

55 days to maturity | indeterminate



COYOTE

55 days to maturity | indeterminate



SUMMER SWEETHEART

75 days to maturity | indeterminate



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DISEASE RESISTANCE

VARIETY GUIDE

[late blight tolerance]

10 FINGERS OF NAPLES

75 days to maturity | indeterminate



GOLD MEDAL

75 days to maturity | indeterminate



ITALIAN HEIRLOOM

75 days to maturity | indeterminate



SEIGER

55 days to maturity | semi-determinate





WHICH IS ALL TO SAY

Growing tomatoes is one of the most rewarding crops to grow and Friends, 'an ounce of prevention is worth a pound of cure' is sage advice for any crop. tomatoes no exception.

Be sure you set the stage for summer abundance with the seeds you sow & stay vigilant!

We love to share what we love and what we've learned the hard way so you can be surrounded by the joy of abundance, share it all with everyone you love!

May abundance surround you this season and always...

...and hope to share our farm with you one day :)

Sow Seeds & Sing Songs,

A handwritten signature in black ink that reads "Petra". The signature is stylized and includes a heart shape above the letter 'P'.



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