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Tomato Nutrient Deficiency Chart

Identify · Diagnose · Fix · Companion to *Ripe Rewards: A Beginner's Guide to Growing Epic Tomatoes* · DirtDivaDiaries.com

Check water before you add anything. Most apparent deficiencies are caused by the wrong soil pH locking nutrients out chemically, or by inconsistent watering that prevents uptake — not by missing nutrients. University Extension soil tests run \$15–\$20 and give you a precise, personalized correction plan. Test *before* planting to prevent problems rather than chase them all season.

NUTRIENT & ROLE	AFFECTS	KEY SYMPTOMS — WHAT YOU SEE	ORGANIC FIX — DO THIS FIRST	PREVENT NEXT SEASON
PRIMARY MACRONUTRIENTS — N · P · K LARGEST QUANTITIES NEEDED; MOST COMMONLY DEFICIENT				
N Nitrogen Leaf growth & green colour	OLDER LEAVES	Older/lower leaves turn pale yellow or yellow-green starting at tips, spreading toward veins. Young leaves stay green longest. Plant looks washed-out and grows slowly overall.	Fish emulsion (fast) Balanced 10-10-10 Compost topdress	Blood meal Balanced fertilizer every 2-3 weeks during growing season; amend with compost before planting each year
P Phosphorus Roots, flowers & fruit set	LEAF UNDERSIDES & STEMS	Plant stunted, dark green overall. Purple or reddish tint on leaf undersides and stems — especially visible in cold soil. Slow to flower; poor root development.	Bone meal (best at planting) High-P fertilizer ⚠ P locks up below pH 5.5 & above 7.5	Bone meal in planting hole each season; maintain pH 6.0-6.8; test pH before planting
K Potassium Fruit quality & disease resistance	OLDER LEAVES	Scorched brown edges on older leaves that progress inward toward the midrib. Fruit small, poorly coloured, ripening unevenly. Weak stems. Increased disease susceptibility.	Sulfate of potash Kelp meal ⚠ Wood ash — use sparingly, raises pH	Kelp meal or greensand during soil prep; switch to high P-K tomato fertilizer when flowering begins
SECONDARY MACRONUTRIENTS — CA · MG · S TOMATOES NEED MORE CALCIUM THAN ALMOST ANY OTHER VEGETABLE				
Ca Calcium ☆ Cell walls & fruit integrity	FRUIT & TIPS	Blossom end rot — dark, sunken, leathery patch on the bottom of fruit. Young leaves curl inward; growing tip may die back. Most often caused by <i>uneven watering</i> blocking Ca uptake, not low soil Ca.	Oyster shell (slow-release) Bone meal at planting Liquid Ca foliar spray (fast) ⚠ Most critical fix: water evenly & consistently	Oyster shell or bone meal in planting hole every year; mulch 2-3 in. to maintain even soil moisture; water on a regular schedule
Mg Magnesium Chlorophyll & photosynthesis	OLDER LEAVES	Older leaves yellow between the veins while veins stay green — interveinal chlorosis on <i>older</i> leaves is the key ID. May progress to brown necrotic patches between veins.	⚠ Soil test FIRST — true Mg deficiency is rare Epsom salt foliar (1 tbsp/gal) — confirmed Mg only Dolomite lime (soil)	Soil test before planting; dolomite lime only if Mg confirmed low; never use Epsom routinely without a test
S Sulfur Protein synthesis & enzymes	YOUNG LEAVES	Young leaves turn uniformly pale yellow — the entire leaf blade, not just between veins. Unlike N deficiency, sulfur affects <i>new</i> growth first. Very rare in compost-amended soils.	Gypsum (calcium sulfate) Sulfate of potash ⚠ Soil test to confirm before treating	Annual compost additions almost always prevent S deficiency; soil test if suspected after ruling out N and Fe
MICRONUTRIENTS — FE · MN · ZN · CU · B NEEDED IN TINY AMOUNTS — MOST OFTEN LOCKED OUT BY HIGH PH, NOT ABSENT FROM SOIL				
Fe Iron Chlorophyll production	YOUNG LEAVES	New leaves yellow between veins, veins stay bright green — interveinal on <i>young</i> leaves is the key ID (Mg shows the same pattern but on older leaves). Severe: leaves entirely yellow or white.	⚠ Check pH first — Fe locks up above 7.0 Iron chelate foliar spray Iron soil supplement Lower pH with sulfur	Maintain pH 6.0-6.5; use acidifying mulch (pine bark); annual soil test — most Fe deficiency disappears when pH is corrected
Mn Manganese Enzyme activation	YOUNG LEAVES	Like iron deficiency but small brown necrotic spots also appear between the yellowed veins . The brown spots between veins are the key distinction from Fe deficiency.	⚠ Adjust pH to 6.0-6.5 first Manganese sulfate foliar spray Manganese sulfate soil drench	Keep pH below 7.0; avoid overliming; organic matter improves Mn availability; test pH annually
Zn Zinc Growth hormones & protein	WHOLE PLANT	Stunted plant with unusually small leaves and shortened internodes — plant looks dense and squat. Leaf edges curl and distort. No clear yellowing pattern; slow growth across the whole plant.	⚠ Check pH — Zn locks up above 7.0 Zinc sulfate foliar spray Zinc sulfate soil drench	Avoid excess phosphorus (competes with Zn); keep pH 6.0-7.0; annual soil test to monitor P levels
Cu Copper Enzyme function	YOUNG LEAVES	Young leaves turn dark green and twisted , appearing wilted despite adequate water. Plant generally stunted. Very uncommon — mainly found in sandy, depleted soils with low organic matter.	Copper sulfate foliar spray Add organic matter (chelates Cu naturally) ⚠ Soil test to confirm before treating	Annual compost additions; organic matter chelates Cu and keeps it plant-available; soil test every 2-3 years
B Boron Cell division & flower set	GROWING TIPS & FRUIT	Growing tip dies back (apical dieback); root tips may blacken. Flowers drop before setting fruit. Leaves may become thick and brittle. <i>Narrowest safe margin of any nutrient — toxic in very slight excess.</i>	⚠ Boron supplement — tiny amounts only; always test first Consistent watering (boron moves with water)	Always test first; avoid overliming; consistent irrigation; never apply boron without a confirming soil test

✦ Nutrient Guide · Page 2 — pH Lock-Out, Fertilizer Timing & Common Myths

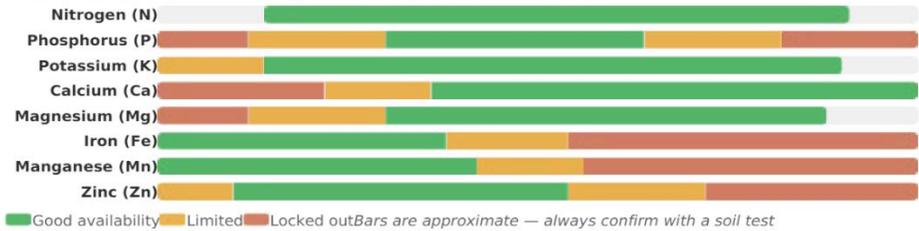
pH lock-out chart · Seasonal fertilizer strategy · The truth about blossom end rot · DirtDivaDiaries.com

📊 pH Lock-Out Chart — Why Nutrients Disappear Even When They're in Your Soil

Incorrect pH locks nutrients out chemically — roots simply cannot access them even if they're physically present in the soil. You could have plenty of iron and still show severe deficiency symptoms at pH 7.5. **Always fix the pH first, then reassess before adding supplements.** Tomato sweet spot: pH 6.0–6.8.



RELATIVE NUTRIENT AVAILABILITY ACROSS THE PH RANGE



🚫 MYTH-BUSTING CORNER

✗ The Antacid Myth

- ✗ Social media says to drop antacid tablets in the planting hole for calcium. **Don't do it.** Antacids contain aspartame, food dyes, and chemical binders that don't belong anywhere near your tomatoes.
- ✗ The right calcium sources: **eggshells, oyster shell, or bone meal** — clean, real, and exactly what plants can actually absorb.

⚠️ The Epsom Salt Trap

- ! Epsom salt is *magnesium* sulfate. Using it routinely to prevent blossom end rot is a hard NO — it actively **blocks calcium uptake** and can make BER dramatically worse.
- ! Excess Epsom salt also raises soil pH — the opposite of what tomatoes need.
- ! True Mg deficiency is rare. If a soil test confirms it, then Epsom may help. Without a test, skip it entirely.

📅 FERTILIZER TIMING — WHAT TO FEED AND WHEN

- 1 AT PLANTING — Build the Foundation**
Work bone meal (P + Ca), oyster shell (slow-release Ca), and compost into the planting hole. Add balanced granular 10-10-10 to surrounding soil. This organic base feeds plants for months.
- 2 VEGETATIVE — Nitrogen Focus**
Balanced fertilizer or fish emulsion every 2 weeks. Plants need nitrogen to build the leaf canopy and strong stems before flowering begins. This is the time for green, leafy growth.
- 3 FLOWERING — Shift to P & K, Add Calcium**
Switch to tomato-specific or high P-K fertilizer. Cut back nitrogen — excess N now means leafy plants with sparse fruit. Add a calcium supplement (liquid or granular) at every watering from here on.
- 4 FRUITING — Calcium Priority Throughout**
Continue calcium and deep, consistent watering — blossom end rot can strike whenever fruit is sizing up. Potassium improves colour, flavour, and shelf life. Never let soil swing from bone dry to soaking.

➕ The Real Blossom End Rot Fix

- ➕ BER is almost always a **calcium delivery problem**, not a shortage in the soil. The Ca is present — inconsistent watering prevents roots from moving it into the developing fruit cells.
- ➕ **Fix #1:** Water deeply and consistently every time — no swings from bone dry to soaking.
- ➕ **Fix #2:** Mulch 2-3 inches around plants to hold even moisture between waterings.
- ➕ **Fix #3:** Oyster shell or bone meal at planting provides a season-long calcium supply.
- ➕ Ivy's tip: fish bones in the planting hole provide excellent slow-release calcium — a traditional method that genuinely delivers.

➕ Kev's Soil Test Checklist

- ➕ University Extension offices test soil for **\$15-\$20** and give a targeted correction plan
- ➕ Test *before planting* — stops deficiencies before they start instead of chasing them mid-season
- ➕ Results include pH, N-P-K levels, organic matter %, and specific amendment recommendations
- ➕ Retest every 2-3 years — pH drifts from liming, rainfall, and fertilizer salt build-up

📖 Dig Deeper in Ripe Rewards

- Appendix E** — Full nutrient deficiency reference
- Chapter 4** — Soil preparation & fertilizing guide
- Appendix F** — DIY organic fertilizer recipes
- Chapter 7** — Troubleshooting yellowing leaves

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