RISE
SUBSTRATES

SOLANUM LYCOPERSICUM

tomato
SUBSTRATE GUIDE

Our grow slab specifications

Propagation-to-harvest EC programme

Generative/vegetative balance

Substrate tuning for commercial tomato production.

WHAT'S INSIDE

- ✓ Growth stage guide: 8 stages from seed to end of season
- ✓ EC & pH targets per stage: generative vs vegetative steering
- ✓ Propagation: seeds, grafting, and coco cube methods
- ✓ 70/30 grow slab blend ratios and custom specifications
- ✓ Mixing with perlite for high-EC summer management
- ✓ Quality control parameters and runoff management
- ✓ Irrigation frequency and radiation-sum trigger guide
- ✓ Long-season (12–15 month) crop extension strategies

Discs
40mm (seed start)

Grow Cubes
10×10 cm (propagation

Grow Slabs
(90/100×15×10 cm | 70/30 Pith-Chip)

Why Coco Peat for Tomato?

Tomato is the **world's #1 greenhouse crop** — and coco peat is the fastest-growing substrate choice for commercial tomato production, replacing rockwool in new builds across Europe, North America and Asia.

SEASON-LONG STABILITY

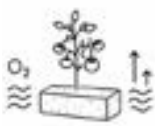
Coco peat maintains consistent pore structure across 12–15 month long-season crops. The chip fraction in 70/30 blends resists compaction better than pure pith, keeping AFP above 20% through to the final truss.

GENERATIVE STEERING

Adjusting EC is the primary generative lever in tomato. Coco peat's low buffering capacity means EC changes reach the root zone within 1–2 irrigations — far faster than rockwool or peat-based media.

EC CONTROL PRECISION

Low native EC (< 0.5 mS/cm) gives you 100% control over root zone nutrition from Day 1. No background salts competing with your tomato-specific feed recipe.



OXYGEN AT HIGH DENSITY

25–30% AFP in 70/30 grow slabs keeps oxygen flowing to high-density root systems. Critical for vigorous generative balance in high-EC flowering and fruiting stages.

DISEASE SUPPRESSION

Trichoderma and beneficial microbiome in natural coco peat. Lower disease pressure vs. rockwool in comparative studies. No Pythium reservoir when EC is managed correctly.

SUSTAINABILITY & DISPOSAL

At end-of-season, coco peat decomposes naturally or can be used as soil conditioner. No rockwool landfill cost. Increasingly required by European supermarket sustainability audits.

TOMATO IS THE HIGHEST-VOLUME COCO PEAT USER GLOBALLY

Approximately 60–65% of all coco grow slab production worldwide is consumed by commercial tomato growers. Rise Substrates is built around that demand — 70/30 pith-chip slabs, water washed and sun dried to a consistent tomato specification.

TOMATO consumes upto

65%

grow slab

Propagation Methods

Seed, grafting, and plug propagation — and how Rise Substrates coco products support each method.

1 SEED PROPAGATION

4–6 weeks to transplant

Standard seed-to-transplant production. Seeds started in coco discs or rock wool cubes, then transplanted to coco cubes before final placement

- Sow 1 seed per 40mm disc (100% fine washed coco pith, EC < 0.3 mS/cm, pH 5.8–6.2)
- Germination at 24–26°C, RH 85–95% — first irrigation 2–3 days after sowing
- Once cotyledons open: transfer disc to 10×10 cm Grow Cube, EC 0.8–1.0 mS/cm
- Transplant cube to slab when 3rd truss is visible and roots exit cube base (3–4 weeks)

EC RANGE
0.3–1.2 mS/cm

pH TARGET
5.8–6.2

RISE PRODUCTS
Discs 40mm → Grow Cubes 10×10 cm → Grow Slabs

2 GRAFTED TRANSPLANTS

6–8 weeks total

Grafting onto Maxifort, Emperador, or Brigeor rootstock for vigour and disease resistance (Fusarium, Corky Root). Grafted plants are standard

- Both scion and rootstock started in separate 40mm discs simultaneously Graft union at ~7 days after germination (1st true leaf stage)
- Post-graft healing: 24°C, 95% RH, low light (7–10 days) in propagation tray with coco cube base
- After healing: move to 10×10 cube at EC 1.0–1.2, normal light — ready for slab at ~5 weeks

EC RANGE
0.3–1.2 mS/cm

pH TARGET
5.8–6.2

RISE PRODUCTS
Discs 40mm (dual starts) → Grow Cubes 10×10 cm → Grow Slabs

3 CUTTING / SIDE-SHOOT PROPAGATION

2–3 weeks

Less common but used for late-season replanting or variety propagation. Side shoots taken at 2–3 leaf stage and rooted in coco cubes or deep

- Take side shoot below 2nd truss, 8–12 cm length, clean cut
- Place directly in 10×10 cm Grow Cube or large disc pre-wetted to EC 0.5, pH 6.0
- High humidity (90%+) for first 5 days to prevent wilting before root initiation
- Roots appear at 10–14 days — move to normal EC programme after roots are visible

EC RANGE
0.5 – 1.0 mS/cm

pH TARGET
5.8–6.2

RISE PRODUCTS
Grow Cubes 10×10 cm or Large Discs 80mm

Growth Stage Guide — 8 Stages

Long-season indeterminate tomato. EC programme drives fruit size, quality, and generative/vegetative balance.

STAGE-BY-STAGE EC, PH & SUBSTRATE TARGETS

STAGE	WEEKS	EC TARGET (mS/cm)	pH TARGET	BLEND / PRODUCT	IRRIGATION FREQ.	KEY FOCUS
1. Seed Start	0–2	0.3–0.5	5.8–6.2	**Discs 40mm 100% Pith**	1–2×/day	Germination, no stress
2. Propagation	2–6	0.8–1.2	5.8–6.2	**Grow Cubes 10×10 cm**	2–3×/day	Root development
3. Transplant Establish	6–8	1.2–1.8	5.8–6.2	**Grow Slabs 70/30 blend**	3–4×/day	Root into slab, establish
4. Early Veg. (Stem growth)	8–12	1.5–2.5	5.8–6.2	**Grow Slabs 70/30 blend**	4–6×/day	Stem thickness, node spacing
5. 1st Truss Flowering	12–16	2.5–3.5	5.8–6.0	**Grow Slabs 70/30 blend**	5–8×/day	Generative — flower set
6. Fruit Swelling	16–22	2.8–3.8	5.8–6.2	**Grow Slabs 70/30 blend**	8–12×/day	Brix, size, cell division
7. Peak Production	22–50	3.0–4.5	5.8–6.0	**Grow Slabs 70/30 blend**	10–16×/day	Yield, balance, quality
8. Season End / Crop Extension	50–60+	2.0–3.5	5.8–6.2	**Grow Slabs (flush if reuse)**	8–10×/day	Maintain vigour, plan next

GENERATIVE VS. VEGETATIVE STEERING IN COCO PEAT

GENERATIVE STEERING (Push to fruit)

- ✓ **EC —** raise by 0.3–0.5 mS/cm (mild stress triggers reproductive response)
- ✓ **WATER VOLUME** — reduce daily volume (controlled deficit)
- ✓ **FIRST IRRIGATION** — later, 30–45 min after sunrise
- ✓ **SHOOT TIP** — steer slightly downward, more compact growing point

Result: faster fruit colouring, higher Brix, shorter internodes, more compact plant.

VEGETATIVE STEERING (Push to growth)

- ✓ **EC** — lower by 0.3–0.5 mS/cm (less stress encourages shoot extension)
- ✓ **WATER VOLUME** — increase daily volume and frequency
- ✓ **FIRST IRRIGATION** — earlier, 15–20 min after sunrise
- ✓ **SHOOT TIP** — allow longer, more upright growing point

Result: stronger stem, longer internodes, larger leaves, more flower trusses.

Grow Slab Specs & Mix Ratios

Slab dimensions, blend specifications, and amendment options for commercial tomato production systems.

RISE SUBSTRATES GROW SLAB OPTIONS FOR TOMATO

SLAB SIZE	BLEND	AFP	WHC	EC (AS SHIPPED)	pH	BEST FOR
90×15×10 cm (Standard)	70/30 Pith-Chip	25–30%	60–65%	< 0.5 mS/cm	5.5–6.5	Single-stem long season, 2–3 plants/slab
90×15×12 cm (Deep)	70/30 Pith-Chip	25–30%	60–65%	< 0.5 mS/cm	5.5–6.5	Higher water buffering, hot climate grows
100×15×10 cm (Extra Long)	70/30 Pith-Chip	25–30%	60–65%	< 0.5 mS/cm	5.5–6.5	High-density rows, more plants per slab
100×18×10 cm (Wide)	70/30 Pith-Chip	28–33%	58–62%	< 0.5 mS/cm	5.5–6.5	Double-stem, wide crown varieties
90×15×10 cm 50/50 Blend	50/50 Pith-Chip	30–35%	55–60%	< 0.5 mS/cm	5.5–6.5	High-humidity greenhouses,
Custom Size	Custom Blend	As spec.	As spec.	< 0.5 mS/cm	5.5–6.5	Specify dimensions, blend, and EC target

MIXING WITH PERLITE & OTHER AMENDMENTS

COARSE PERLITE
(3–6mm) 10–15%

- ✓ AFP boost to 38–45%.
- ✓ Reduce: root rot in humid glasshouses, summer drainage in hot climates.
- ✓ Mix: 10–15 parts perlite per 85–90 parts 70/30 coco blend on-site before bag filling.

NO VERMICULITE FOR TOMATO SLABS

Vermiculite is not recommended for tomato slabs — it compacts under the weight of the growing medium and reduces AFP over time. It is suitable for seedling mixes only, not long-season production slabs.

ADDITIONAL CHIP
Fraction +10%

- ✓ Increase chip fraction to 40% for extreme drainage demand.
- ✓ Reduces WHC by ~5% and increases AFP by ~5%.
- ✓ Available pre-blended from Rise Substrates or mix on-site with extra washed chips supplied separately.

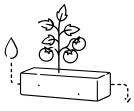
Quality Control Metrics

Runoff management, substrate monitoring, and troubleshooting guide for commercial tomato production.

SUBSTRATE & RUNOFF MONITORING PROGRAMME

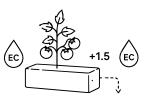
PARAMETER	STAGE 1–3 PROPAGATION	STAGE 4–5 VEG / FLOWER	STAGE 6–7 FRUIT / PEAK	STAGE 8 END SEASON
Feed EC (mS/cm)	0.3–1.8	2.5–3.5	3.0–4.5	2.5–3.5
Feed pH	5.8–6.2	5.8–6.0	5.8–6.0	5.8–6.2
Runoff EC (target)	< feed EC	+ 0.5–1.5 vs feed	+ 0.5–1.5 vs feed	Allow to rise
Runoff pH	5.8–6.5	5.8–6.5	5.8–6.5	5.8–6.8
Drain % (runoff target)	10–15%	20–25%	25–35%	15–20%
Irrigation freq./day	2–4×	5–8×	10–16×	6–10×
Slab moisture check	Daily visual	Substrate probe 2× daily	Substrate probe 4× daily	Daily probe
Slab temp. (root zone)	18–22°C	18–24°C	20–26°C	18–22°C

RUNOFF EC MANAGEMENT — CRITICAL TOMATO RULE



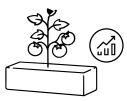
Runoff EC = Feed EC

Neutral — substrate in balance. No action needed.



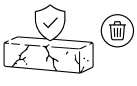
Runoff EC > Feed EC + 1.5

Salt build-up — increase drain % or add a plain-water flush shot between feeds.



Runoff EC < Feed EC

Plant consuming salts faster than supplied — slightly increase feed EC or concentration.



Runoff EC dropping suddenly

Check dripper blockages. Possible dry spots or root damage. Inspect slab moisture manually.

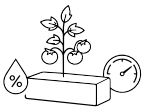
Irrigation Programme Guide

Radiation-sum irrigation for tomato in coco peat — the industry standard for commercial long-season production.

RADIATION-SUM TRIGGERED IRRIGATION SCHEDULE

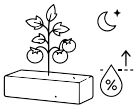
GROWTH STAGE	J/cm² TRIGGER	SHOT SIZE (mL/plant)	FIRST SHOT AFTER SUNRISE	LAST SHOT BEFORE SUNSET	TARGET DRAIN % PER DAY
Propagation (cubes)	Timed	50–100	45 min after	3 hrs before	10–15%
Transplant / Establish	50–75 J/cm²	80–120	30 min after	2 hrs before	15–20%
Early Vegetative	50–75 J/cm²	100–150	30 min after	1.5 hrs before	20–25%
Flowering / 1st Truss	50–75 J/cm²	100–150	20 min after	1.5 hrs before	20–25%
Fruit Swelling	40–60 J/cm²	80–120	20 min after	1 hr before	25–30%
Peak Production (Summer)	35–50 J/cm²	80–120	15 min after	45 min before	28–35%
Peak Production (Winter)	60–80 J/cm²	80–120	30 min after	1.5 hrs before	20–25%
End Season / Flush	Manual	Flush dose	—	—	—

SLAB WATER CONTENT & START-OF-DAY MANAGEMENT



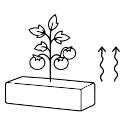
START-OF-DAY WC TARGET

60–65% water content at start of day (before first irrigation). Use tensiometer, substrate sensor (WCM), or manual squeeze test —slab should feel firm but not dry.



END-OF-DAY WC TARGET

70–75% water content at last light. Final irrigation should bring slab up to this level. Overnight slab should drain naturally to 60–65% by next morning.



DRY-BACK OVERNIGHT

Natural dry-back of 5–10% WC overnight is healthy — this creates the mild daily osmotic signal that keeps tomato plants in generative mode.

SLAB SQUEEZE TEST

Squeeze slab at mid-point. “Firm with slight give” = correct. “Hard/rigid” = too dry, irrigate immediately. “Squishy/dripping” = overwatered, hold irrigation.

Tomato Types & Coco Substrate Adjustments

Different tomato types have different water, EC, and blend requirements — adjust your programme accordingly.

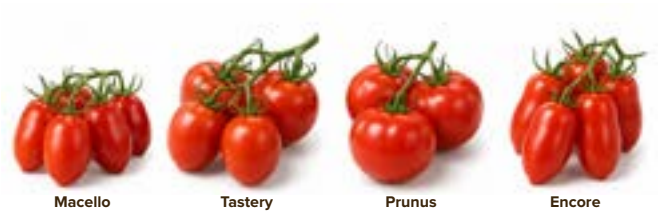
BEEFSTEAK / LARGE FRUIT

Marmande | Big Boy | Brandywine | Ancora

SLAB	70/30 blend	90–100×15×10–12 cm
EC	2.5–3.8 mS/cm
pH	5.8–6.0

Highest water demand. Deep slab (12 cm) recommended. Slow EC ramp — aggressive EC increases cause BER (Blossom End Rot) in large fruits. More drainage holes needed.

TRUSS / CLUSTER



Macello | Tastery | Prunus | Encore

SLAB	70/30 blend	90–100×15×10 cm
EC	3.0–4.2 mS/cm
pH	5.8–6.0

Standard programme. Most responsive to generative steering. Maintain runoff EC within 1.0–1.5 mS/cm above feed EC. Popular in Dutch and UK greenhouse production.

CHERRY / COCKTAIL

Dasher | Juanita | Sunstream | Apero

SLAB	70/30 or 50/50 blend	90×15×10 cm
EC	3.5–5.0 mS/cm
pH	5.8–6.0

Highest EC tolerance — push EC higher for Brix. Smaller root volume per fruit means faster response to EC changes. 50/50 blend works well in summer for drainage speed.

MINI PLUM ROMA

Piccadilly | Santini | Ciliegino

SLAB	70/30 blend	90×15×10 cm
EC	3.2–4.5 mS/cm
pH	5.8–6.0

Between cherry and round tomato. Very popular retail variety. GoodEC tolerance. Standard 70/30 slab works well across full season.Medium-length internodes — easy to manage.

RISE SUBSTRATES

READY TO GROW?

Next step tomato programme

This brochure gives you our complete product range overview. For detailed substrate specifications tailored to your specific crop — EC targets, recommended blends, irrigation schedules, and seasonal adjustments — ask your Rise Substrates representative for a dedicated crop brochure.

INDIVIDUAL CROP BROCHURES AVAILABLE FOR:

- → Cucumber
- → Strawberry
- → Herbs & Leafy Greens
- → Blueberry
- → Bell Pepper
- → Roses

Sector guides:
Greenhouse Growers | Floriculture | Propagation Nurseries | Distributors & Formulators

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