

🌿 ROOT-BOUND FIX — CHEAT SHEET

Indian Container Gardens • Day 14 of the 30-Day Summer Gardening Challenge

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⚠️ **THE MOST IMPORTANT FACT** ❖ **A ROOT-BOUND PLANT IS NOT SICK. IT IS STRUCTURALLY OVERCROWDED.**

WHAT IS HAPPENING INSIDE THE POT:

Roots occupy 70%+ of container volume. No water-holding soil remains. Every watering channels straight through root gaps to the drainage hole in under 60 seconds.

The plant experiences drought at the root zone while water drains freely around it. Wilts. You water. Passes through. Recovers briefly. Cycle repeats.

WHY INDIA IS DIFFERENT:

Root growth rate doubles between 20°C and 35°C.
Indian terrace soil in May: 38–45°C.

European guide: root-bound over multiple seasons.
Indian 12-inch terracotta pot: 10–12 WEEKS from transplant.

February sowing → root-bound by May when fruit production peaks.

🌿 THE 2 DIAGNOSTIC TESTS — 60 SECONDS TOTAL, NO EQUIPMENT NEEDED

TEST 1 — DRAINAGE SPEED (60 SEC)

Apply 500ml water slowly to the container. Time until drainage appears at hole.

Under 60 seconds Root-bound likely → do Test 2

60–180 seconds Approaching → inspect monthly

3–5 minutes Healthy soil structure

TEST 2 — SLIDE-OUT INSPECTION (30 SEC)

Water pot. Wait 30 min. One hand on stem base. Slide pot upward in smooth pull — do not twist. Examine root ball surface — look at all sides and base.

📷 Photograph the root ball before replacing. Date it. This is your baseline.

ROOT COVERAGE SCALE — WHAT YOU SEE AND WHAT TO DO

| | |
|---|--------------------------------|
| Under 30% — Abundant soil visible, few edge roots | HEALTHY — No action |
| 30–50% — Roots visible at edges, soil still present | NORMAL — Monitor monthly |
| 50–70% — Dense edges, limited soil, possibly drainage roots | PLAN repot in 4–6 weeks |
| 70–85% — Roots cover all surfaces, very little soil | EMERGENCY SCORING + repot plan |
| 85–100% — Root ball holds pot shape, no soil visible | SEVERE — Immediate protocol |

5 SIGNS OF ROOT-BOUND — VS HEAT STRESS VS ROOT ROT

| Symptom | Root-Bound | Heat Stress (D5) | Root Rot |
|------------------------|----------------------------------|-------------------------------|--------------------------------|
| Afternoon wilt | Yes — partial overnight recovery | Yes — full overnight recovery | Yes — may not recover |
| Water drainage | Under 60 seconds always | Normal 3–5 min | Normal or poor if hole blocked |
| Morning posture | Declining week by week | Fully upright each morning | Drooping worsening daily |
| Responds to fertiliser | No — nutrients can't reach | No — temperature problem | No — roots damaged |
| Drainage roots visible | Yes — multiple thick roots | No | No — roots brown/mushy |

✓ *THE DEFINITIVE TEST: Slide the pot off. Roots covering everything, no soil visible = root-bound confirmed regardless of other diagnoses being considered.*

WEEKS TO ROOT-BOUND BY CITY — 12-INCH POT, CAPSICUM OR TOMATO

| City | May Soil Temp | Weeks to Root-Bound | Minimum Pot |
|-----------|---------------|---------------------|-------------|
| Bangalore | 32–36°C | 14–16 weeks | 14-inch |

| City | May Soil Temp | Weeks to Root-Bound | Minimum Pot |
|-------------|---------------|---------------------|---------------------|
| Mumbai | 34–38°C | 12–14 weeks | 14-inch |
| Chennai | 36–42°C | 11–13 weeks | 14–16-inch |
| Hyderabad | 38–44°C | 10–12 weeks | 16-inch |
| Madanapalle | 38–44°C | 10–12 weeks | 16-inch |
| Delhi | 40–48°C | 9–11 weeks | 16–18-inch |
| Ahmedabad | 42–50°C | 8–10 weeks | 18-inch or grow bag |

🌿 ROOT-BOUND FIX — PAGE 2: EMERGENCY SCORING + PREVENTION

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Emergency Scoring Protocol • September Repot • Fabric Grow Bags • Pradeep Benchmark

🌿 EMERGENCY ROOT SCORING — BUYS 3–4 WEEKS, COSTS ₹0

WHAT IT DOES:

4 vertical cuts break the compacted outer root mat. Creates water-penetration channels. Restores hydraulic capacity by 40–60%. Lateral roots begin growing into channels within 5–7 days.

CUT POSITIONS — CLOCK FACE ON ROOT BALL BASE:

12 o'clock

3 o'clock

6 o'clock

9 o'clock

Each cut: 2–3cm deep into outer root mat. Vertical, full height of root ball.

STEPS:

1. Slide plant out (smooth pull, no twist)
2. Lay root ball on flat surface on its side
3. Kitchen knife — 4 vertical cuts at clock positions
4. Penetrate 2–3cm into outer root mat only
5. Pour vermicompost + water slurry into each channel
6. Replace in pot — same orientation
7. Water 3–4 litres immediately
8. Water twice daily for 5 days

✗ DO NOT:

Score more than 4 cuts — central roots must stay intact
Score in afternoon sun — morning or evening only
Fertilise within 7 days — scored roots vulnerable
Expect same-day improvement — Day 4–6 is the turnaround

RECOVERY TIMELINE AFTER EMERGENCY SCORING

| Day | Plant Appearance | Drainage | Action |
|---------|----------------------------|-----------------|----------------------|
| Day 0 | Wilted — mild shock | Slightly slower | Water twice daily |
| Day 1–3 | May look worse temporarily | Improving | Continue twice-daily |

| Day | Plant Appearance | Drainage | Action |
|----------|---------------------------|-----------------------------|----------------------|
| Day 4–6 | Firmer morning posture ✓ | 90–120 seconds | Reduce to once daily |
| Day 7–10 | Morning vigour restored ✓ | 2–3 minutes | Normal watering |
| Week 2–4 | New leaf emergence ✓ | Normal for scored container | Plan September repot |

WILL NOT RECOVER: Root-bound condition itself. Productivity partly limited until September repot.

WILL RECOVER: Morning vigour (Day 4–6). Fertiliser response (Day 7+). New leaf emergence (Day 10–14).

🌿 SEPTEMBER REPOTTING PROTOCOL

POTTING MIX (per 16-inch container):

| | | |
|-----------------------|---------------|---------|
| Cocopeat | 40% – 5L | ₹60–100 |
| Vermicompost | 30% – 3L | ₹80–120 |
| Garden/red soil | 20% – 2L | ₹0 |
| Perlite / coarse sand | 10% – 1L | ₹20–40 |
| Neem cake | 2 tablespoons | ₹15–25 |

KEY RULES:

Repot morning or evening — NEVER midday. Water 2 hours before. Minimise root disturbance. Water 4–6L immediately after. Withhold fertiliser 10–14 days. Extra shade 5–7 days.

Retains moisture 6–8 hours vs 2–3 hours garden soil mix.

Delays next root-bound onset by 4–6 weeks.

🌿 PRADEEP — DELHI BENCHMARK

7TH FLOOR EAST TERRACE, 8 PUSA RUBY TOMATOES

4 years growing tomatoes in 10-inch plastic pots.

Two summers declining yields.

Tried and failed:

- X Shade cloth adjustment
- X NPK 19:19:19 weekly
- X Spider mite spray
- X Heat stress protocol

PRIYA'S QUESTION:

"Have you ever slid a plant out of its pot to look at the roots?"

First slide-out: 5 roots through drainage hole, no soil visible ✓

Emergency scoring ✓

5 plants → 14-inch terracotta ✓

Best season in 4 years ✓

"I had been growing for four years without ever looking at the roots. I thought the leaves told you everything."

🌿 FABRIC GROW BAGS — PERMANENT PREVENTION

HOW AIR PRUNING WORKS:

Root tip reaches breathable fabric wall → exposed to air → desiccates and stops → plant produces dense lateral roots throughout medium instead of compacted mat at wall.

RESULT:

Same volume as terracotta = 4–6 weeks longer before root-bound symptoms. Typically requires repotting every 2–3 seasons vs annually for terracotta.

₹300–500 for set of 5 • Amazon India • Eliminates emergency scoring as recurring need

⚠️ MINIMUM POT SIZES — NEVER GO SMALLER

| Plant | Minimum | Preferred |
|--------------------|------------------|----------------|
| Tomato (Pusa Ruby) | 14-inch (10L) | 16-inch (15L) |
| Capsicum (Bharat) | 14-inch (10L) | 16-inch (15L) |
| Brinjal | 14-inch | 16-inch |
| Cucumber / Gourd | 14-inch grow bag | 16-inch fabric |
| Methi / Coriander | 8–10-inch | 10-inch |
| Curry leaf | 14-inch | 18-inch |

10-inch pot = 4–5L. Tomato at 10 weeks needs 6–7L.
Already root-bound before first flower.

🌱 ROOT-BOUND FIX — PAGE 3: PREVENT + MONITOR

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Inspection Calendar • Organic Mix • Products • 27-Item Sunday Check

SEASON-ROUND INSPECTION CALENDAR

FEB–MAR: BASELINE

First slide-out at 6–8 weeks from transplant. Coverage should be 25–40%. Photograph the root ball with date.

This is your reference.

APRIL: CRITICAL WINDOW ★

Inspect every 4 weeks. April is when coverage crosses 40–50% (manageable) → 60–70% (approaching). 65%+ in April = schedule September repot. 75%+ = emergency scoring now.

MAY–JUNE: ACTIVE MANAGEMENT ★★

80%+ on any inspection = emergency scoring within 48 hours. Begin pot upgrade planning for September. Switch to bottom watering for final 4 weeks.

SEPTEMBER: THE RESET

Full repotting protocol all plants that reached root-bound, or any container 2+ seasons without fresh mix. New cocopeat-vermicompost-perlite mix. Larger container.

🚩 BY THE TIME AFTERNOON WILT IS PERSISTENT

Root coverage has already exceeded 85%. 4–6 weeks of productivity already lost. Inspect every 4 weeks — do not wait for symptoms.

🌱 ORGANIC PREVENTION MIX + FREE RICE WATER

COCOPEAT-VERMICOMPOST MIX (per 16-inch pot):

| | | |
|-----------------|----------------|---------|
| Cocopeat | 5 litres (40%) | ₹60–100 |
| Vermicompost | 3 litres (30%) | ₹80–120 |
| Garden/red soil | 2 litres (20%) | ₹0 |
| Perlite | 1 litre (10%) | ₹20–40 |
| Neem cake | 2 tablespoons | ₹15–25 |

Retains moisture 6–8 hours (vs 2–3 hours garden soil mix). Maintains structure full season. No compaction.

FREE RICE WATER (every 10 days):

Cloudy water from washing uncooked rice. Contains silica + potassium + B-vitamins. Slows organic matter breakdown in potting mix. 500ml per 12-inch container. ₹0 from kitchen.

Result: root-bound onset delayed 14–16 weeks (heavy mix) → 18–22 weeks (structured mix).

SUNDAY CHECK — 27 ITEMS (UNDER 31 MIN)

PRODUCTS (AFFILIATE LINKS IN ARTICLE)

&#x26;DRAINAGE SPEED NEW D14 — 500ml water → time
drainage. Under 60 sec = slide-out inspection today

&#x26;ROOT INSPECT NEW D14 — first Sunday each month:
slide out one plant, check coverage. Above 70% =
scoring or repot plan

27 checks. Under 31 minutes. Once a week.

Slide the pot off. Look at the roots.

Everything else follows.

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