Nutrient “Burn” That Wasn’t: Low-EC, Underfeeding & How We Fixed It

Abstract

We encountered brown tips, pale leaves, and slow growth that first looked like “nutrient burn.” After checking the reservoir, we found low EC (too few dissolved nutrients) because the tank had been topped up with plain water. In short, our “burn” symptoms came from underfeeding, not excess. (Bluelab, 2021; University of Minnesota Extension, 2025; University of Georgia Extension, 2025).

Introduction

Our plan was simple: verify EC and pH, re-mix the reservoir to crop-target EC, and create a top-up routine that maintains EC instead of diluting it. We also set daily checks and alerts so the reservoir can’t quietly drift low again. (UMN Extension, 2025; UGA Extension, 2025).

Body

What happened (signs we saw)

- Brown, crispy tips on older leaves and pale new growth.
- Slow growth even though light and temperature were normal.
- EC reading in the reservoir was below the crop’s range. (Bluelab, 2021).

Why we encountered it (simple cause)

- Low EC = not enough nutrients. When plants use nutrients faster than we replace them, or when we add plain water without re-dosing the water, the EC drops and deficiency-type symptoms appear (yellowing, slower growth, weak tissue). (Bluelab, 2021; Dosatron, 2025).
- Reservoir management matters. Small systems swing quickly. Without a nutrient top-up plan, every top-off with plain water dilutes the mix. Basic extension guides stress monitoring EC and pH to keep uptake balanced. (UMN Extension, 2025; UGA Extension, 2025).

How we solved it (step-by-step)

1. Measure & confirm
   We checked EC and pH in the reservoir (and at an outlet) and confirmed EC was below the crop’s target band. (Bluelab, 2021).

2. Drain or re-dose
    - If EC was very low and water looked dirty, we drained and re-mixed fresh nutrients to the correct EC and pH.
    - If EC was only a bit low, we brought EC up gradually by adding A/B concentrate, mixing well, then re-testing. (Bluelab, 2021; Dosatron, 2025).
3. Make a top-up routine
   We stopped adding plain water blindly. Instead, we:
    - Top up with nutrient solution (pre-mixed at a known EC) or
    - Top up with water, then re-dose to the target EC (small steps to avoid overshoot). (Bluelab, 2021; UMN Extension, 2025).
4. Daily checks & alerts
   We added daily EC/pH checks (same time each day), set a min–max log, and added low-level/low-EC alerts so the tank can't run low and dilute again. (UMN Extension, 2025).
5. Watch new growth
   We looked for healthy new leaves. Old brown tips don't heal, but new growth should look normal once EC is back in range. (Bluelab, 2021).

Conclusion

We standardised measure → re-dose to target EC → pH check → daily monitoring. We now top up with nutrients (or re-dose after water) instead of diluting the tank. Since doing this, new growth has been healthy and the "burn-like" symptoms have not returned because the real issue was low EC (underfeeding), not excess.

References

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