ROI FEATURE

TOMATO FARMER - PUEBLA, MEXICO
ROI PAYBACK: $96,000 IN 8 MONTHS

Grower Saves Thousands with Innovative Water Treatment System

INTRODUCTION & PROCESS DESCRIPTION

Water salinity is a crucial factor in whether a plant can thrive or die, as high sodium levels can negatively affect plant quality and significantly reduce production. For growers, salinity levels must be precisely managed—but that's not always easy. Many municipal water systems or wells provide inconsistent salinity levels, and plants demand varying amounts of salinity at different growth stages.

One tomato and pepper grower in Puebla, Mexico, who relied on well water, faced severe financial pressure due to inconsistent salinity. The company was even forced to purchase seedlings from a third-party source because the water quality wasn't suitable for growing them in-house.
The grower needed better results from its water treatment system and, thankfully, found the perfect solution.

THE CHALLENGE: SPENDING ON SEEDLINGS

While integral to the economy, agriculture is also a major drain on Mexico's water resources, accounting for 77% of the country's total water withdrawal. This heavy demand often leads to severe water scarcity, which directly impacts salinity variability—making it even more difficult to secure the high-quality water needed for crop production.
Tomato seedlings are particularly sensitive to salinity, which is why this grower in Puebla was unable to produce seedlings in-house. The grower considered adopting a water treatment method that required the addition of chemicals to achieve the right salinity levels. However, this option was not environmentally responsible, would complicate the existing treatment process, and would also add significant costs.
As a result, the grower was forced to purchase seedlings from a third-party supplier at a cost of several hundred thousand dollars—a major financial burden in an industry with tight margins. If the grower could nurture its own seedlings, it would not only save money but also gain full control of the growing process.
It was time for a new water treatment solution.

VOLTEA'S CAPDI SOLUTION: TUNABLE WATER TREATMENT; CONSISTENT RESULTS

By choosing Voltea's Membrane Capacitive Deionization (CapDI), a salt-free water purification technology, the grower found a solution that met every need. CapDI provides a revolutionary way to treat water by removing salt ions and total dissolved solids (TDS) through an electrical current. The Industrial Series 12 (IS-12) System installed on-site includes a key feature essential to consistently achieving the ideal water quality and sodium levels: tunability. With tunability, operators can select the optimum ion removal rate for each crop, precisely removing and controlling TDS and sodium levels while retaining beneficial minerals.
For example, feedwater may contain 89 parts per million (ppm) of sodium. One crop might require sodium levels reduced to 21 ppm, while another at a different growth stage may require 51 ppm. Voltea's technology ensures consistent salinity levels regardless of the feedwater quality. System operators no longer need to spend time manually monitoring water concentration. CapDI automatically adjusts to variations in feedwater, delivering consistent, high-quality water output tailored to each crop's needs.

VOLTEA INDUSTRIAL SERIES 12 (IS-12) SYSTEM

The grower was shocked to find a solution that not only addressed water quality issues and reduced costs, but also required less time and energy to maintain.

THE RESULTS: IMPROVED WATER QUALITY; ANNUAL SAVINGS

In just eight months, the grower achieved a remarkable ROI. The use of Voltea's technology resulted in:

- $96,000 in savings
- 85% water recovery rate
- Reduced energy use
- Ideal salinity levels for each crop
- Lower maintenance requirements

Being able to adjust salinity levels and produce higher-quality water allowed the grower to achieve its original objective of growing seedlings in-house. The grower was surprised to find a solution that not only solved water quality issues and reduced costs, but also required less time and energy to maintain.

"It's truly a trouble-free piece of equipment," said a company representative. "There's no need for us to be there next to the system all the time looking after it — the IS-12 does all the heavy lifting for us. Not only is there reduced maintenance, but we now utilize water in an optimum way."

As demand for stricter water use controls increases, CapDI's environmentally friendly, tunable water treatment solution offers an innovative way to reduce water use while properly irrigating sensitive crops.

WATER RECOVERY

85%

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