

Hydrogen-rich irrigation (H₂i) is emerging as a powerful tool for improving the quality, storability, and nutritional value of blueberries. Molecular hydrogen enhances the fruit's own antioxidant systems, protects against storage-related deterioration, and supports higher-value pack-outs across fresh and frozen markets. The result is slower deterioration and better postharvest performance.

HyO H₂i is a clean, nature-positive approach that aligns with consumer and retailer demand for freshness without synthetic chemical or biological preservatives.

How HyO H₂i Supports Blueberry Quality and Business Outcomes



Improved textural firmness, bloom, and visual quality

By attenuating oxidative membrane lipid peroxidation and preserving cellular ultrastructure, H₂i maintains firmness, natural waxy bloom, and overall aesthetic appeal.

Boosts Antioxidant Systems and Preservation

Blueberries irrigated with hydrogen exhibit elevated accumulation of phenolic acids and flavonoids, underpinned by transcriptional activation of key biosynthetic genes. This biochemical preservation enhances nutritional value, stabilizes anthocyanin pigments, and fortifies endogenous defense mechanisms.

Extends Blueberry Shelf Life

Hydrogen-based irrigation attenuates the biochemicals responsible for cell wall degradation, pigment degradation, and volatile off-flavor compound formation. The delayed senescence effect is linked to enhanced antioxidant enzyme activities and reprogramming of metabolic networks, enabling longer marketable quality under standard cold storage conditions.

Improves Firmness and Reduces Shrink

By limiting oxidative damage to membrane lipids and proteins, HyO preserves cellular turgor pressure and reduces leakage and drying-induced shriveling. These translate to higher pack-out yields, reduced downgraded fruit, and minimized shrinkage during retail display.

Enables Smart, Hydrogen-Rich Irrigation on the Farm

Preharvest hydrogen-rich irrigation imparts persistent biochemical and physiological benefits that extend through postharvest storage, demonstrating a durable balance of fruit metabolism and storability.

Contact HyO today to start using hydrogen-rich irrigation (H₂i) water in your blueberry farming and postharvest processing