



Agriculture:

Productivity, Sustainability, and Food Security

Magnetic Water Treatment (MWT) is transforming agriculture worldwide by enabling farmers to **produce more with the same water, fertilizer, and energy inputs**. By improving water structure and preventing mineral scaling in irrigation systems, MWT enhances nutrient delivery, soil–water interaction, and root–zone hydration—leading to higher productivity, lower costs, and greater resilience to water scarcity.

Positioned as an **input-efficiency and climate-resilience technology**, MWT delivers **measurable, repeatable benefits across geographies and cropping systems** without the use of chemicals, additional energy, or changes to farming practices.

Core Impact Dimensions of Magnetic Water Treatment

MWT consistently delivers performance gains across the following **seven harmonized dimensions**, forming a common evaluation framework for policymakers, investors, and development agencies:

- Yield Enhancement**
30–100% Increase in crop productivity and quality, including nutritionally richer produce, driven by improved water and nutrient uptake.
- Hard-Water & Saline Water Usability**
*Facilitates the productive use of hard and saline irrigation water (up to **EC 12**), expanding cultivable land and reducing dependence on freshwater sources.*
- Water Efficiency**
20–40% reduction in irrigation demand through improved infiltration, distribution, and soil moisture retention.
- Fertilizer Efficiency**
30–70% reduction in chemical and nutrient inputs due to enhanced nutrient solubility and root absorption.
- Energy Efficiency**
10–40% reduction in pumping and distribution energy resulting from lower water demand and reduced friction losses.
- Infrastructure Protection**
Extended lifespan of drip, sprinkler, and micro-irrigation systems by preventing scale formation and clogging.
- Climate & Environmental Co-Benefits**
*Lower greenhouse gas emissions (**Scope 1 & 2**), reduced nutrient runoff and groundwater contamination, mitigation of soil salinity, and improved ecosystem health.*



Asia

- Improves crop yield and quality in saline and hard-water regions, particularly for rice, wheat, and vegetables.
- Enhances performance and lifespan of drip and sprinkler irrigation systems by reducing mineral deposits.
- Reduces fertilizer requirement by 50–70% through improved nutrient uptake efficiency.
- Cuts irrigation pump energy consumption by ~30% due to reduced water demand and lower friction losses.
- Supports national initiatives such as **PM-KUSUM, PMKSY, and the Natural Farming Mission** in India

Africa

- Enables cultivation in arid and semi-arid regions by improving soil wettability and water penetration.
- Enhances fertilizer efficiency, reducing dependency on costly imports.
- Strengthens food security goals under **Africa's Agenda 2063**.
- Provides a low-cost, non-electric, low-maintenance solution suitable for smallholder farmers and cooperatives.
- Improves resilience of rainfed and marginal farming systems.

South America

- Supports soil regeneration and organic agriculture under Brazil's **Low-Carbon Agriculture (ABC+) Program**.
- Enhances microbial activity and soil health through improved water–soil interaction.
- Reduces irrigation-related input costs by 20–40% for crops such as sugarcane, coffee, and soybeans.
- Improves tolerance to water stress in Andean and Amazonian regions amid changing rainfall patterns

North America

- Aligns with the **USDA Climate-Smart Agriculture** framework by lowering the carbon footprint of water-intensive farming.
- Reduces nutrient runoff through better absorption, supporting **EPA Clean Water Act** compliance.
- Improves water reuse efficiency in highly stressed basins in California and Mexico.
- Supports sustainable intensification without increasing water withdrawals

Europe

- Supports the **EU Green Deal** and **Farm to Fork Strategy** by reducing chemical inputs and improving water efficiency.
- Enhances precision irrigation in vineyards, orchards, and greenhouse cultivation.
- Reduces water consumption by 20–40% while maintaining crop quality.
- Mitigates hard-water challenges in limestone-rich regions (France, Spain, Italy, Greece).
- Extends life of drip and micro-irrigation infrastructure.
- Aligns with **Common Agricultural Policy (CAP)** sustainability and nutrient management regulations.

Gulf Nations

- Supports the **EU Green Deal** and **Farm to Fork Strategy** by reducing chemical inputs and improving water efficiency.
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