



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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