

Agro-Based Industries:

Process Optimization & Sustainable Manufacturing

Agro-based industries face complex water challenges across their value chains—from raw material processing to product formulation and wastewater management.

Magnetic Water Treatment (MWT) delivers measurable improvements in process efficiency, product quality, and environmental compliance across food, beverage, dairy, fermentation, and botanical processing industries.



Production Process Enhancement

MWT improves water performance at critical process points, enabling cleaner, more efficient operations.

Key benefits

- Improves heat-transfer efficiency in pasteurization, sterilization, and evaporation systems by preventing scale formation on heat exchangers
- Reduces fouling in spray dryers, concentrators, and cooling systems, extending CIP (clean-in-place) intervals by **40–60%**
- Enhances extraction efficiency in botanical, herbal, and essential oil processing by improving solvent penetration and mass transfer
- Minimizes bacterial biofilm formation in processing lines, supporting **HACCP compliance** and reducing contamination risk
- Improves consistency and stability in fermentation processes (brewing, dairy cultures, probiotics) through better water quality and mineral availability

Wastewater Treatment & Discharge Compliance

MWT enhances biological and physical treatment efficiency, enabling regulatory compliance without major infrastructure upgrades.

Operational and compliance outcomes

- Reduces **COD and BOD** in effluent streams by improving biological treatment performance
- Enhances flocculation and sedimentation, reducing sludge volumes by **20–30%** and lowering disposal costs
- Improves performance and lifespan of membrane systems (MBR, RO) by reducing scaling and fouling
- Enables compliance with stringent discharge standards (EPA, EU Water Framework Directive, local regulations)
- Facilitates internal water recycling and reuse, reducing freshwater intake by **25–40%** in closed-loop systems
- Supports **Zero Liquid Discharge (ZLD)** strategies in water-stressed regions

Plant-Based Medicines & Botanical Processing

MWT delivers specific advantages for high-value botanical, nutraceutical, and traditional medicine industries.

Quality and yield improvements

- Increases extraction yields of phytochemicals, alkaloids, and therapeutic compounds by **15–25%**
- Improves solubility and bioavailability of active ingredients in herbal and nutraceutical formulations
- Reduces processing time and solvent consumption, lowering operating costs and environmental footprint
- Supports compliance with **GMP standards** for Ayurvedic, TCM, and pharmaceutical botanical operations
- Enables cleaner extraction with reduced chemical residues, supporting organic and natural product certifications
- Improves batch-to-batch consistency, potency, and product standardization.

Competitive Advantage for Agro-Based Industries

From sugar refineries and dairy plants to herbal medicine and nutraceutical manufacturers, agro-based industries are adopting Magnetic Water Treatment to achieve measurable gains in product quality, operational efficiency, regulatory compliance, and sustainability—creating durable competitive advantages in increasingly quality-driven and environmentally regulated markets.