Issue 37
April 30, 2026

NEWSLETTER

Smart & Net-Zero Project

The Smart Net-Zero (SNZ) project team under the Food and Fertilizer Technology Center (FFTC) for the Asian and Pacific Region regularly collects and shares information related to sustainable agri-food systems and climate-smart agriculture, including research, news, policy, data and event updates around the world on the project website.

Overview

Managing Every Drop:

Smart Irrigation for Resilient Agrifood Systems

Water stress is becoming a practical constraint for modern agrifood systems. Agriculture already accounts for over 70% of global freshwater withdrawal, and more than 60% of human-induced land degradation occurs on agricultural land. In Asia-Pacific, more than 500 million people face water scarcity, with regional water availability projected to decline by about 20% by 2050. Against this backdrop, this issue's Research focuses on how digital irrigation tools can help agriculture use water more precisely under climate uncertainty. The featured review article shows that water-use efficiency improves when monitoring and control systems are integrated, especially through closed-loop and Model Predictive Control approaches. Supporting studies examine IoT sensing, AI-based decision-making, evapotranspiration modeling, digital twins, and solar-powered automation. They also point to a common challenge: smart irrigation will only scale if systems are affordable, interoperable, field-tested, and usable for smallholders in water-stressed settings.

News extends the theme through CGIAR's nexus-based irrigation planning, Google-backed lower-methane drip-irrigated rice, and Taiwan's AI-powered tea irrigation system. Other news cover climate-resilient agriculture, agrifood finance, soil carbon credits, and livestock carbon footprint assessment. Policy further shows that smart irrigation requires more than technology. Progress also depends on land and water governance, financing models, digital infrastructure, open data, and farmer capacity-building.

Content

RESEARCH

01 THEME: ICT in Agrifood Sustainability

Smart irrigation monitoring and control strategies for improving water use efficiency in precision agriculture: A review

February 1, 2022 | Agricultural Water Management |

Introduction: This review, conducted by researchers from the University for Development Studies and Kwame Nkrumah University of Science and Technology in Ghana, examines the current state of smart irrigation monitoring approaches, including soil-based, weather-based, and plant-based methods. It further compares open-loop and closed-loop control strategies to identify the most suitable combinations for open-field applications.

Key findings: The review finds that water use efficiency improves most effectively when monitoring and control are integrated rather than managed separately. Closed-loop control systems consistently outperform open-loop alternatives, as open-loop systems cannot respond to real-world uncertainties in soil moisture conditions and crop responses. Among monitoring strategies, soil moisture sensors achieve water savings of 50–58.8%, depending on crop type and system configuration. Weather-based scheduling using evapotranspiration models achieves approximately 30% water savings in cantaloupe and greenhouse conditions, while plant-based approaches using the CWSI and NDVI indicators generate savings of 10–45%.

Among control strategies, Model Predictive Control (MPC) shows the strongest overall performance. However, most MPC studies remain at the simulation stage, with limited validation under real open-field conditions. Artificial neural networks (ANNs) reduce energy and water use by 20.5–23.9% in strawberry cultivation. The review recommends integrating soil, plant, and weather monitoring inputs within a discrete MPC framework for open-field applications. Key limitations include the lack of open-field dynamic models capable of handling uncertainties from soil variability and weather disturbances. Future research should prioritize the development and field evaluation of hybrid MPC approaches in real open-field environments.

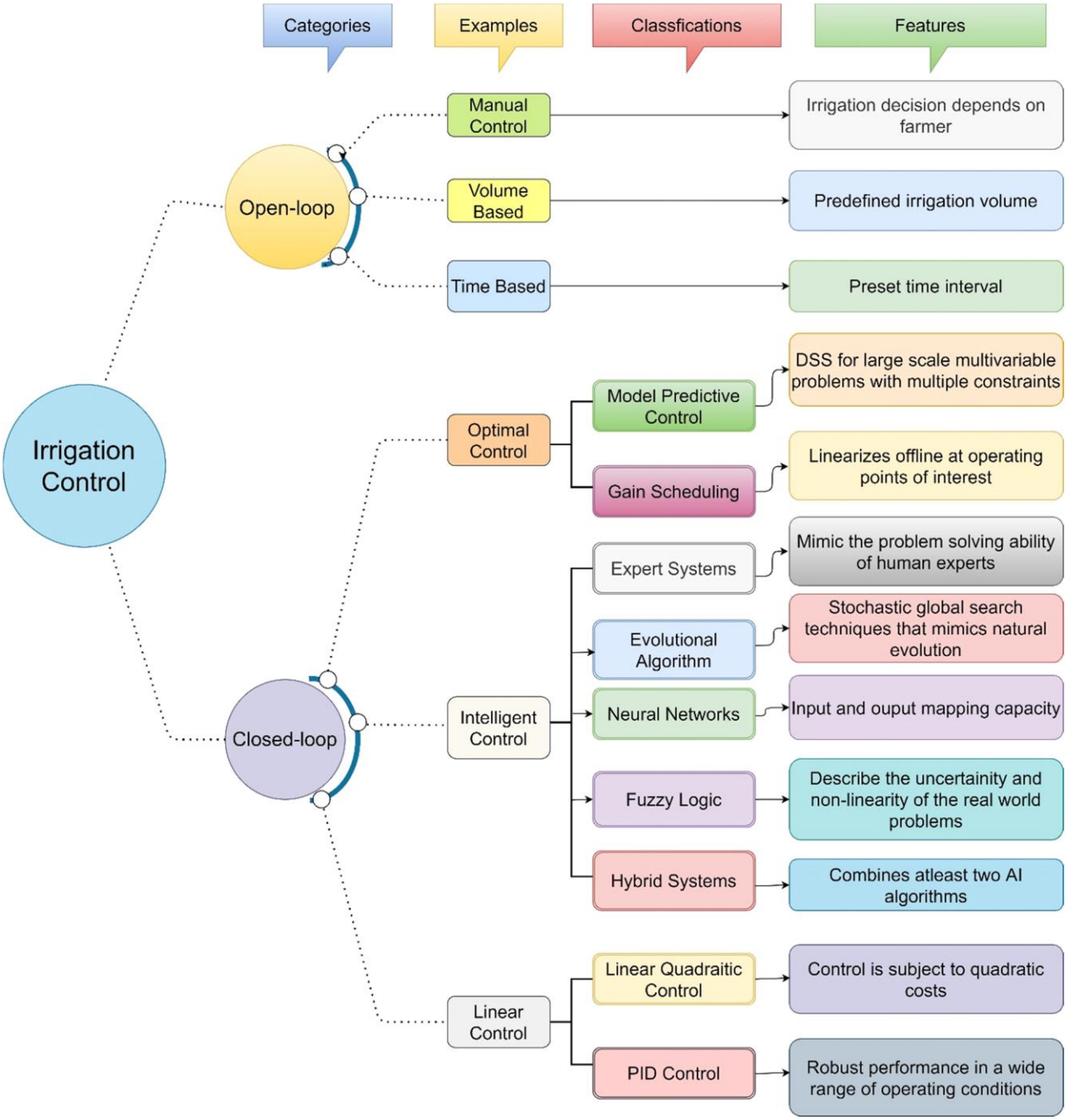


Figure | Classification of irrigation control strategies.

02 THEME: ICT in Agrifood Sustainability

IoT sensing for advanced irrigation management: A systematic review of trends, challenges, and future prospects

April 4, 2025 | Sensors |

Introduction: The rapid proliferation of Internet of Things (IoT) technologies in agriculture has generated a large and diverse body of research, yet the field lacks a comprehensive synthesis of which hardware platforms, communication protocols, and application domains have driven practical progress. This systematic review, conducted by researchers from the Mediterranean Agronomic Institute in Italy, addresses this gap through bibliometric and systematic analyses that map technology trends, leading contributing countries, and dominant communication technologies in IoT-based irrigation systems.

Key findings: Using a Web of Science dataset of 290 papers published between 2014 and 2024, the review shows rapid growth in IoT-based irrigation research, particularly between 2020 and 2022. India, China, the United States, Brazil, Italy, and Saudi Arabia were the leading contributors. The Arduino UNO remains the most widely used microcontroller unit, followed by the ESP8266, Raspberry Pi, ESP32, and ATmega328P. WiFi is the most frequently cited communication technology, while LoRa is emerging rapidly as a practical alternative for rural deployment because of its 10–15 km communication range, low power consumption, and cost-effectiveness. Remote monitoring and control is the dominant application area, followed by water-use optimization and soil moisture monitoring. The review also identifies persistent barriers, including the lack of standardization, compatibility challenges, rural connectivity limitations, and implementation costs, while highlighting the integration of IoT with artificial intelligence (AI), edge computing, and blockchain as a key future direction for enabling predictive and adaptive irrigation decision-making systems.

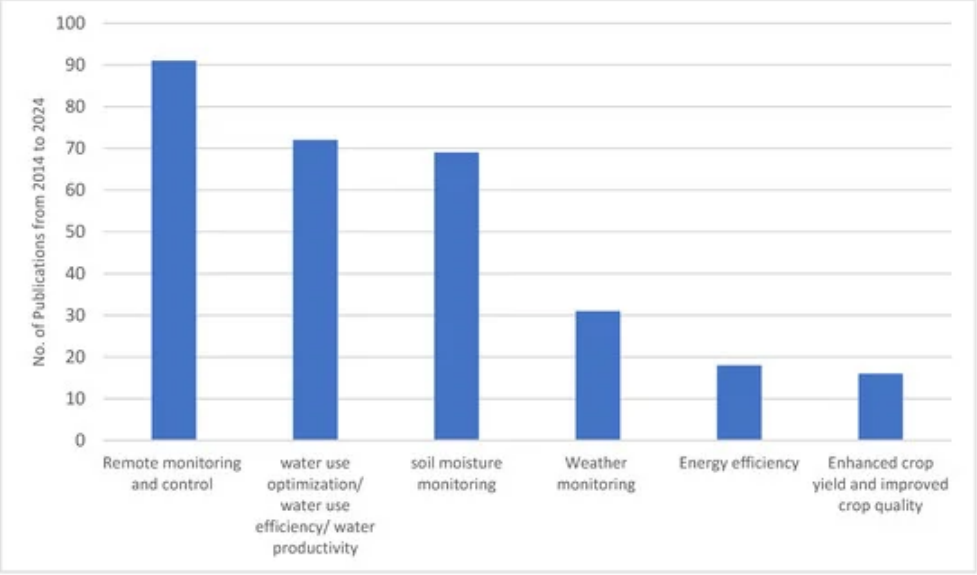


Figure | Main applications of IoT in smart irrigation as reported from 2014 to 2024.

03 THEME: ICT in Agrifood Sustainability

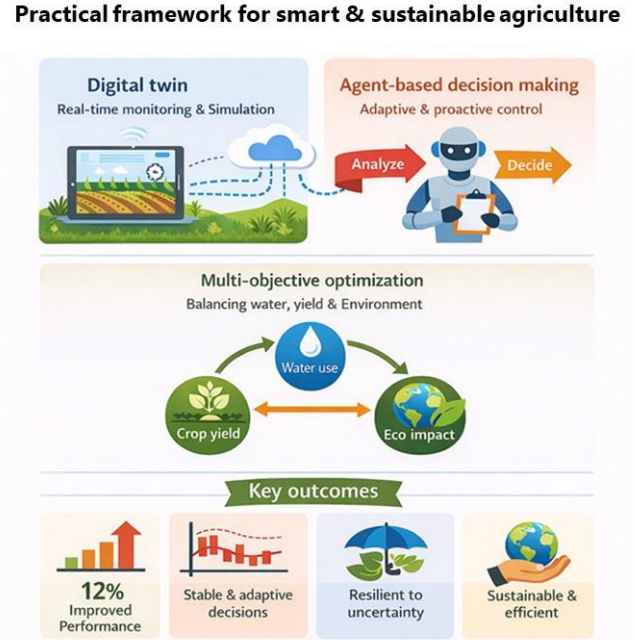
Agentic artificial intelligence-driven digital twin for real-time irrigation control with fuzzy sustainability objectives

April 15, 2026 | IJOCTA |

Introduction: Real-time irrigation management faces a fundamental challenge: existing frameworks typically use either static optimization models or reactive threshold-based controls, neither of which can simultaneously balance water conservation, crop yield, and environmental sustainability under dynamic conditions. Researchers from University of National and World Economy in Bulgaria addressed this gap by proposing an integrated framework that embeds a digital twin directly in a closed agent-based decision-making loop, using fuzzy multi-objective optimization to enable adaptive, real-time irrigation control validated against farm field data.

Key findings: The framework continuously updated with real soil moisture and weather sensor data, along with agent-based decision-making that follows a perception–analysis–decision–action cycle, and optimizes 4 objectives simultaneously: 1) crop growth stability, 2) water and energy minimization, 3) control fluctuation reduction, and 4) environmental compliance. Among 3 tested algorithms (NSGA-II, MOEA/D, MOPSO), NSGA-II achieved the highest hypervolume and greatest robustness across drought and extreme climate scenarios. Sensitivity analysis confirmed the framework maintains stable equilibria across parameter changes, with water consumption objectives showing the highest sensitivity. Key limitations include partial reliance on simulated data and a current scope limited to irrigation decisions, excluding fertilization and harvest timing. Future directions include multi-region field validation, extension to broader farm management decisions, and integration of adaptive learning for automatic parameter updating.

Graphical abstract



04 THEME: ICT in Agrifood Sustainability

A review on enhancing water productivities adaptive to climate change

February 5, 2025 | Journal of Water and Climate Change |

Introduction: Climate change is intensifying water scarcity and disrupting seasonal rainfall patterns, particularly in tropical and smallholder farming systems where adaptive irrigation solutions remain limited or unaffordable. An Indonesian-led research team from IPB University and Sriwijaya University addresses this challenge through a comprehensive review of global irrigation water use efficiency (WUE) research. The study evaluates smart irrigation systems as a water management strategy and introduces evapotranspirative irrigation technology as a low-cost, electricity-free adaptive approach.

Key findings: The review identifies smart irrigation systems integrating sensors, automation, data analytics, drip and micro-irrigation, and weather-based scheduling as the most effective approach for improving WUE and productivity. However, high costs and technical complexity continue to limit adoption among smallholder farmers, particularly in Indonesia, where barriers include limited credit access, low technical capacity, cultural resistance, and unstable water availability caused by climate variability. As an alternative, the study highlights evapotranspirative irrigation technology, which delivers water based on actual crop evapotranspiration (ETc) without electricity. Field tests in Indonesia showed strong performance across multiple crops and settings, including 40% water savings in greenhouse applications and irrigation water productivity of 1,307.34 g/L in water lettuce cultivation. The most advanced system, FONi (Non-Powered Automatic Fertigator), achieved nearly 100% irrigation efficiency. The review notes the need for broader field-scale validation and stronger policy support for smallholder adoption.

Figure | Example of FONi implementation on actual land.

05 THEME: ICT in Agrifood Sustainability

Development of a low-cost smart irrigation system for sustainable water management in the Mediterranean region

October 30, 2024 | Smart Agricultural Technology |

Introduction: Farmers in the Mediterranean region face competing pressures of water scarcity and the high cost of smart irrigation technology, yet most commercial precision irrigation systems remain financially inaccessible at farm scale. Researchers at the CNR Institute of BioEconomy and CNR Institute of Geosciences and Earth Resources in Italy developed and field-tested a low-cost, fully automatic evapotranspiration-based smart irrigation system for tomato and melon production in Tuscany over 3 growing seasons (2021–2023).

Key findings: The system uses a satellite-derived evapotranspiration (ET) model (Agrosat) combined with growth-degree-day (GDD)-based crop coefficients to generate daily irrigation schedules, with LoRa/LTE connectivity, solar power, and an Arduino/Thinker Board control platform. Results across 3 seasons show a progressive refinement: in 2021, conventional irrigation applied 511 mm to tomato and 454 mm to melon. By 2023, the full smart ET-based system reduced water applied to 188 mm and 168 mm respectively, approximately 50% below conventional benchmarks, equivalent to reducing delivery from 3,000 to 1,800 m^3/ha. Tomato yield at full irrigation reached 101.4 t/ha in 2021, with the 75% treatment achieving 63.1 t/ha under the best-performing conditions in 2023. Total system cost remained below €6,000 for a 700 m^2 pilot, with the control hardware being scalable at no additional cost to larger field areas. Key limitations include the absence of randomized plot design due to drip infrastructure constraints and phytosanitary complications in the final season. Future work will focus on validating GDD-based crop coefficients locally and scaling the system to larger commercial fields.

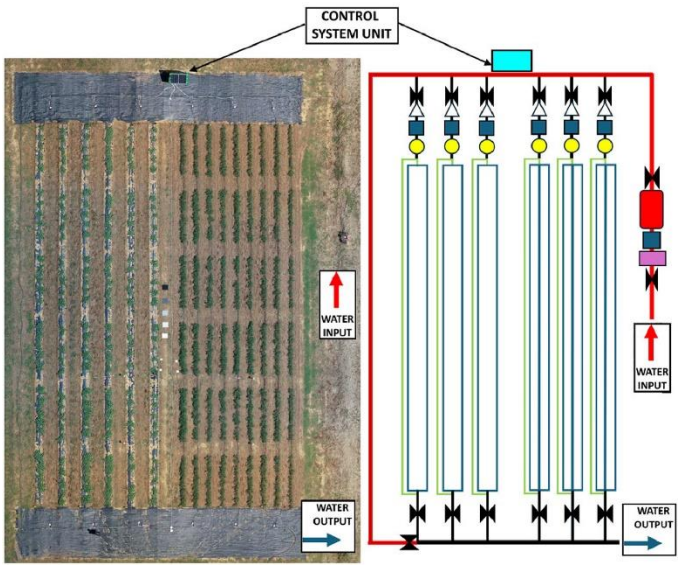


Figure | Diagram scheme of the smart irrigation system developed in the DATI Project, equipped with valves (black), filter (pink), pressure sensors (blue), expansion tank with pressure gauge (red), pressure regulators with manometers (white), digital litre counters (yellow).

06 THEME: ICT in Agrifood Sustainability

IoT-enabled solar-powered smart irrigation for precision agriculture

March, 2025 | Smart Agricultural Technology |

Introduction: In Bangladesh and many other smallholder farming economies, dependence on diesel pumps and unreliable grid electricity constrains the adoption of precision irrigation even as water scarcity intensifies. A researcher team at Bangladesh Agricultural University's Department of Farm Power and Machinery developed and tested a solar-powered IoT-based smart irrigation system that eliminates dependence on conventional electricity by integrating a 20W solar panel with a Raspberry Pi 4 base station and NodeMCU/ESP8266 substations, communicating via MQTT protocol and monitored through a responsive web interface accessible from any internet-connected device.

Key findings: The system uses capacitive soil moisture sensors and DHT22 temperature-humidity sensors to trigger automatic pump activation when soil moisture falls below 45% and deactivation at 80%, reducing unnecessary water use. The 12V DC battery stored 90W, sufficient to run the irrigation pump for over 5 hours; substations maintained operation for over 19 hours on a single lithium battery charge. Field testing over 9 months confirmed reliable wireless data transmission and pump control through more than 100 uninterrupted irrigation cycles. The responsive web interface provides real-time visualization and remote pump control from personal computers and mobile devices. Overall, the system demonstrates strong potential for smallholders across electricity-limited regions of South and Southeast Asia. Limitations include approximately ±2% timing delays in pump actuation, rain interference inflating soil moisture readings during wet periods, and the need for a larger pilot field with more appropriate pump specifications for full-scale evaluation. Future work should address expanded field-scale testing, advanced statistical performance analysis, and GUI enhancements for user experience.

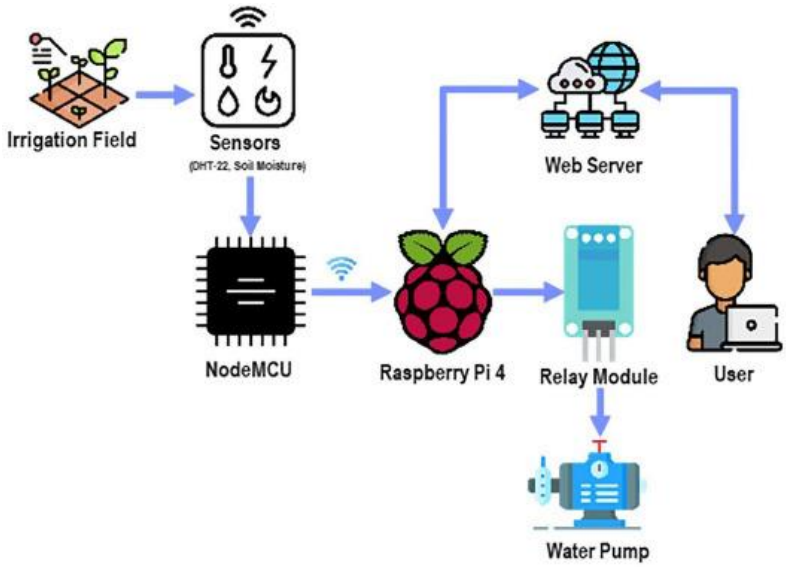


Figure | Architecture of the proposed system.

NEWS

01 **THEME:** ICT in Agrifood Sustainability

Sustainable irrigation is nexus thinking in action

March 16, 2026 | CGIAR |

At the 2026 Global Forum for Food and Agriculture, CGIAR experts highlighted the **Water-Energy-Food-Environment (WEFE) nexus** as the essential framework for sustainable irrigation. As individual farmers drive a global irrigation boom, the initiative warns that ignoring environmental trade-offs risks groundwater depletion and inequity. Key developments include Pakistan's new Solar Suitability Mapping tools to manage groundwater vulnerability, Mali's programs leveraging untapped groundwater for female-led nutrition gardens, and Haiti's use of agroforestry to maintain irrigation resilience. These examples transition nexus thinking from theory to action through practical decision-support tools and community-based governance. These findings emphasize that achieving net-zero goals requires aligning renewable energy adoption with strict water conservation and ecosystem protection. Future efforts will focus on scaling these integrated tools to balance agricultural productivity with long-term climate sustainability.

02 **THEME:** ICT in Agrifood Sustainability; GHG Emission Reduction

Less methane, more rice: How Google's sustainability initiative could offer a water-positive blueprint for Global South rice farming

March 9, 2026 | Rice Today (IRRI) |

The article reports that a Google-backed N-Drip pilot in Changhua City, Taiwan, showed how gravity-based drip irrigation could reduce both water use and emissions in rice farming as part of a "water-positive" blueprint for the sector. Results from the first growing season indicated 57%t lower water use, more than 80% lower methane emissions, and a 5.4% increase in rice yield compared with conventional flood irrigation. The 24-hectare pilot combines gravity-fed water delivery with sensors and real-time analytics to optimize irrigation and fertilization without relying on high-pressure pumps. The article argues that the approach could be relevant for water-stressed rice regions in the Global South, although wider adoption would still require overcoming specific challenges such as selecting rice varieties suitable for non-flooded conditions, addressing potential iron deficiency in rice grown in aerobic soils, and designing layouts to lower installation costs.

03 **THEME:** Policy Incentives, Financing, Pricing

Climate-resilient agriculture may benefit farmers' incomes

March 17, 2026 | European Environment Agency (EEA) |

A briefing published by EEA highlights that climate-resilient agriculture (CRA) can help stabilize farm incomes while also supporting food security and ecosystem health in Europe. Its reviews 51 farm-level case studies across 4 practice areas: soil and water management, crop system diversification, landscape-level management, and livestock system redesign. One example highlighted is reduced tillage, which improved soil structure and water retention, cut diesel use by about 50%, lowered production costs by roughly 40%, and reduced labor needs by around 25-30%, depending on context. However, the EEA notes that benefits vary by region; in areas already under significant climate stress, such as southern Europe, CRA measures can deliver benefits immediately by reducing losses, whereas in other regions it may take longer for the economic advantages to become apparent. The brieing also notes that farmers are often most vulnerable during the transition period, underscoring the need for stronger governance, targeted investment, and better climate-risk monitoring.

04 **THEME:** Policy Incentives, Financing, Pricing

Updated plan aims to boost NI's resilience to climate change

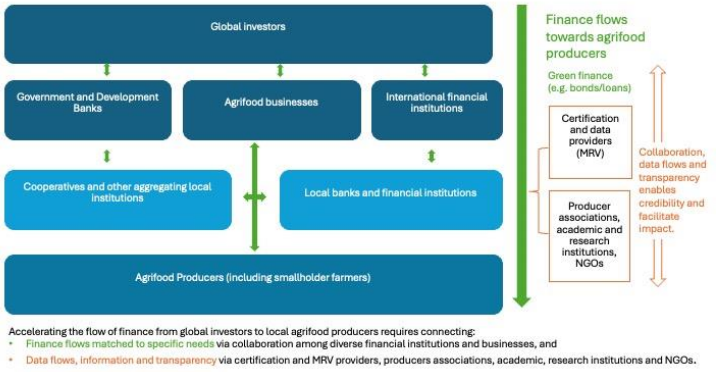
March 19, 2026 | BBC News |

The Northern Ireland Executive has approved the **third Climate Change Adaptation Programme (NICCAP3)**, a strategic framework comprising 280 actions from 2024–2029. Agriculture Minister Andrew Muir stated that the plan addresses immediate threats such as severe flooding and climate-sensitive animal diseases impacting regional productivity. Key initiatives include a Sustainable Agriculture Programme and a Food Strategy Framework to support cross-departmental resilience. The article illustrates the necessity of these policies through local farming challenges. One vegetable grower reported that extreme weather patterns have forced a shift to manual harvesting to manage mud, significantly increasing labor costs. Additionally, a livestock farmer has adopted regenerative grazing to protect soil health during increasingly unpredictable wet periods. By integrating such on-farm innovations with policy-led initiatives, the programme aims to stabilize food systems and position the region as a resilient hub for climate-smart agriculture.

05 **THEME:** Policy Incentives, Financing, Pricing

Financial standards can help foster green investment in the agrifood transition

March 2, 2026 | IFPRI |



Global climate finance for agrifood systems currently meets only 8% of the annual transformation needs. IFPRI's post reports that adopting harmonized standards, such as those from the Climate Bonds Initiative, is critical to building investor confidence and bridging the gap between international capital and fragmented small-scale producers. Systemic solutions involve multi-stakeholder models where local cooperatives aggregate farmers to access green bonds and sustainability-linked loans. Real-world applications range from Sweden's bonds for precision farming to Asia's PandanGreen facility for smallholders. These frameworks utilize science-based KPIs to track methane reduction and soil health. Ultimately, achieving an inclusive transition requires enhanced loan market transparency and value-chain collaboration to share risks. By aligning global markets with local implementation, these standardized tools ensure that finance rewards nature-based solutions while stabilizing global food security.

06 **THEME:** Carbon Sequestration; MRV (Measurement, Reporting, Verification)

Indigo Carbon surpasses 2 million soil carbon credits in landmark 1.1 million issuance

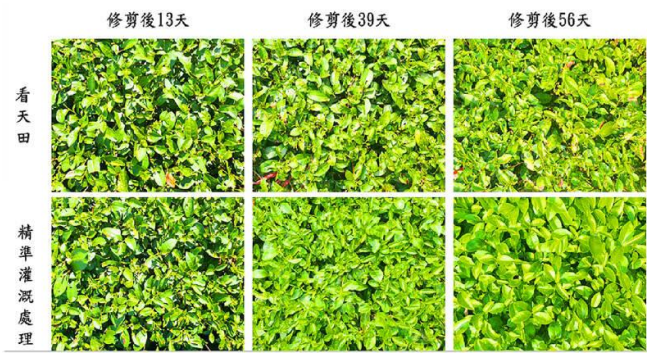
February 26, 2026 | Carbon Credits |

Indigo Carbon announced its verified climate impact from U.S. croplands has exceeded 2 million metric tons after a new issuance of 1.1 million carbon credits through the Climate Action Reserve. The latest issuance came from Indigo's U.S. soil carbon project under the Soil Enrichment Protocol Version 1.1, which now carries the ICVCM Core Carbon Principles label. This milestone reflects a broader trend of corporate demand shifting toward high-quality verified removals, exemplified by Microsoft's major 12-year agreement signed in January to purchase 2.85 million soil carbon removal credits from the company. Indigo is presenting the milestone as evidence that soil-based carbon programs can scale while meeting stricter quality expectations. It also highlights the program's emphasis on independent verification, registry issuance, and 100-year project-level monitoring, alongside claims that soil carbon practices can support water conservation and crop resilience.

07 **THEME:** ICT in Agrifood Sustainability

MOA develops AI-powered irrigation system for teas

March 2, 2026 | Taipei Times |

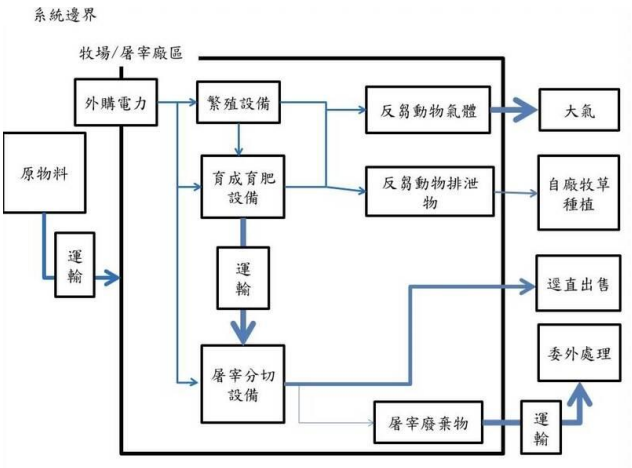


Taiwan's Ministry of Agriculture reports its Tea and Beverage Research Station has developed an AI-powered drip irrigation system to help tea growers manage more erratic rainfall and drought. The system combines IoT sensors, evapotranspiration calculations, micro-weather monitoring, and a cloud platform so farmers can track field conditions on mobile devices and receive customized irrigation advice. According to the station, the system increased tea shoot numbers by 1.6-fold, raised raw tea leaf production by 1.24-fold during a wet summer and by 2.2-fold during dry periods, and reduced irrigation water use by up to 24 % in dry seasons. While research showed that caffeine and total catechins in the leaves fell slightly under this system, the produced tea outperformed crops grown with traditional techniques in terms of fragrance, flavor, and sweet aftertaste. The station said the system could help growers shift from weather-dependent irrigation to more precise water management.

08 **THEME:** MRV (Measurement, Reporting, Verification); GHG Emission Reduction

Taiwan assesses carbon footprint of domestic beef at 29.74 kg CO_2e per kilogram

March 24, 2026 | LTN Taiwan |



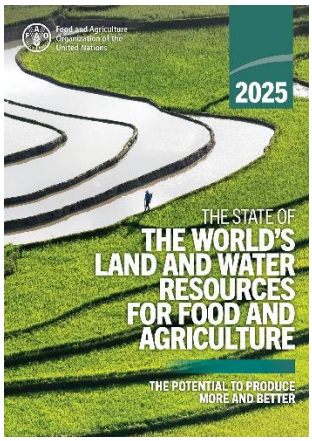
Taiwan's Livestock Research Institute (TLRI) has completed a cradle-to-gate carbon footprint assessment for domestic fresh beef, using a representative Kinmen (金門) beef farm as the survey case. The inventory covered on-farm management, slaughter, waste treatment, and retail stages, and found a carbon footprint of 29.74 kg CO_2e per kilogram of fresh beef. The assessed farm kept 320 cattle, produced 20,022 kg of beef, and generated total emissions of 595.48 metric tons of CO_2e. The primary purpose of this inventory is to provide a scientific basis for the industry's transition and to encourage domestic producers to obtain "Carbon Footprint Labels" to meet national net-zero emission demands. The institute noted that the main sources of emissions were animal metabolism and energy use, but that local feed sourcing, such as using Kinmen Kaoliang Liquor by-products and manure recycling, could help improve efficiency and support lower-carbon production.

POLICY

01 THEME: Sustainable Production; Climate Smart Agriculture

The State of the World's Land and Water Resources for Food and Agriculture 2025

Food and Agriculture Organization (FAO) | Source | Report |

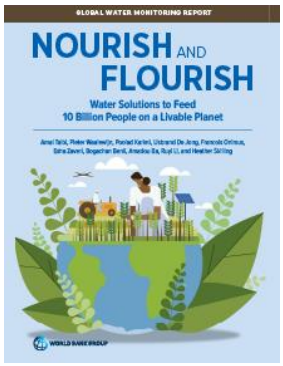


This FAO's flagship report 2025 edition argues that land, soil, and water pressures are now a central constraint on agrifood system sustainability. It notes that more than 60% of human-induced land degradation occurs on agricultural land and that agriculture accounts for over 70% of global freshwater withdrawal. Against this backdrop, it examines how land degradation, water scarcity, and climate change are affecting productivity and ecosystems, while also highlighting untapped opportunities to produce more and better by safeguarding finite resources. Meeting future demand by 2050 will require agriculture to produce around 50% more food, feed, and fibre than in 2012, placing additional pressure on resources already under severe strain. FAO emphasizes integrated land, soil, and water management and identifies the enabling conditions needed to scale sustainable solutions with lasting impact. The report serves as a "roadmap" for decision-makers seeking to balance improved food production with ecosystem health, underscoring how integrated management practices are essential to building efficient, inclusive, resilient, and sustainable agrifood systems.

02 THEME: Climate Smart Agriculture; Sustainable Production; Supply Chain

Nourish and Flourish: Water Solutions to Feed 10 Billion People on a Livable Planet

World Bank Group (WBG) | Source | Report |

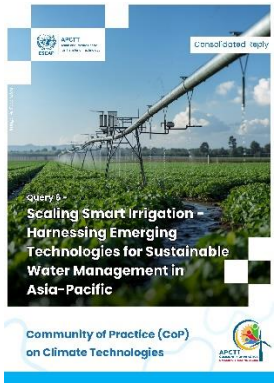


This frames agricultural water management (AWM) as a development issue that must connect water availability with food production and trade choices. Drawing on geospatial analysis, household data, and country experience, the report introduces a framework that categorizes countries by **water stress** and **food import or export** status to guide country-specific action rather than one-size-fits-all policy. It argues that when food production aligns with water realities, the same land and water can raise yields, improve livelihoods, create jobs, and reduce environmental pressure. Investing in this sector yields significant dividends: a 10% increase in agricultural productivity can reduce the likelihood of poverty by 2.5% to 3%, and every USD 1 invested in AWM can generate up to USD 4 in economic returns. The report also calls for a shift away from fragmented, investment-centric approaches and overdependence on public funding toward stronger performance accountability and long-term sustainability in water policy and financing.

03 THEME: Climate Smart Agriculture; Sustainable Production

Scaling Smart Irrigation - Harnessing Emerging Technologies for Sustainable Water Management in Asia-Pacific

Asian and Pacific Centre for Transfer of Technology (APCTT) | Source | Report |

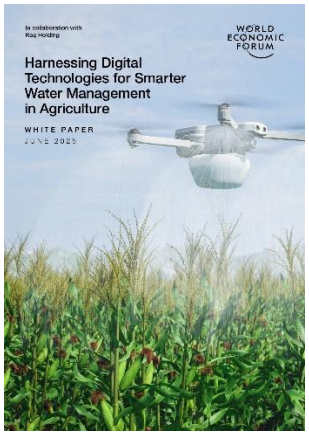


APCTT's query report presents smart irrigation as a practical response to water scarcity, climate variability, and rising food demand across Asia-Pacific, where the report notes that more than 500 million people already face water scarcity and water availability could decline by about 20% by 2050. It highlights **subsurface drip irrigation (SDI), IoT-enabled irrigation control, and AI-based precision agriculture** as key technologies for improving water-use efficiency and crop productivity. Meanwhile, it stresses that technology alone is not enough: scaling depends on affordability, interoperability, farmer and institutional capacity-building, open data platforms, public-private partnerships, and alignment with national water and climate policies. The report emphasizes that policymakers and investors require a more precise investment logic to scale beyond pilots, including data-driven evidence on the cost per hectare, the timeframe for farmers to repay their investments, and the public return on subsidy programs. It concludes that policy, finance, and skills must advance alongside technology for smart irrigation to scale beyond pilots.

04 THEME: Climate Smart Agriculture; Sustainable Production

Harnessing Digital Technologies for Smarter Water Management in Agriculture

World Economic Forum (WEF) | Source | Report |



This WEF's white paper examines how digital technologies can improve agricultural water management at a time when water scarcity is intensifying and agriculture consumes more than 70% of global freshwater. The report further addresses the urgency of action that up to 700 million people could be forced to relocate due to water shortages by 2030. Drawing on input from industry leaders, academia, and members of the Forum's climate adaptation and water initiatives, it highlights **applications of AI, IoT, and remote sensing to monitor water availability, optimize irrigation, guide crop selection, and support rainwater harvesting.** The paper argues that without digital transformation, agriculture risks falling behind in responding to climate-induced water shortages. Successful deployment of these solutions depends on 4 core implementation levers: **1) establishing robust data infrastructure, 2) expanding rural connectivity, 3) upskilling farmers with digital literacy, and 4) ensuring technologies are affordable and scalable for smallholders**. It positions the report as a guide for policymakers, business leaders, and water practitioners seeking actionable ways to increase efficiency, reduce waste, and strengthen long-term water and food security.

EVENT

01

4th Edition of the International Conference on Agri Science and Food Technology (Agri Science 2026)

October 8-10, 2026 | Hybrid | Rome, Italy |

AGRISCIENCE-2026

Agri Science 2026 will be held in Rome and virtually under the theme *"Advancing Global Agriculture: Technology, Transformation, and Food Security."* The conference will serve as a global forum for scientists, researchers, agri-technologists, food engineers, and industry professionals to exchange research findings and discuss innovations in agriculture and food science. The programme includes keynote lectures, plenary sessions, oral and poster presentations, panel discussions, and workshops covering topics such as climate-smart agriculture, precision farming, smart farming technologies, soil health, sustainable crop management, agri-biotechnology, digital transformation, and green technologies. The abstract submission deadline is April 28, 2026, while early bird registration closes on April 22, 2026.

02

2026 International Conference on Agricultural Sciences: Agroecology and Sustainable Systems (ICAS 2026)

October 21-23, 2026 | In-person | Bologna, Italy |

Organized by MDPI's open-access journals Agriculture and Agronomy and hosted at the University of Bologna, ICAS 2026 focuses on agroecology and sustainable agricultural systems. Sessions cover pest management, crop rotation, fertility management, biostimulants and biocontrols, precision agriculture, economics of regenerative farming, and agroecological soil management. The conference aims to bring together diverse stakeholders with the common goal of advancing sustainable agriculture. The abstract submission deadline is June 22, 2026, with registration remaining open until October 14, 2026.

03

23rd IUFoST World Food Congress 2026

October 25-29, 2026 | In-person | Hong Kong |

Organized by the International Union of Food Science and Technology (IUFoST), the congress will convene scientists, technologists, regulators, industry leaders, and future professionals under the theme *"Where Food Science Meets the Future."* It aims to foster scientific dialogue and cross-sector collaboration to advance resilient, safe, and sustainable food systems. The programme will cover topics including functional foods and health, innovative ingredients and processing technologies, traditional food knowledge, food safety, regulatory science, and measurement technologies. Abstract submissions have been extended to June 14, 2026, while early-bird registration is open until June 15, 2026.

04

3rd Global Congress on Food and Nutrition (GCFN 2026)

October 26-27, 2026 | Hybrid | Paris, France |

GCFN 2026 is organized by the United Research Forum under the theme *"The Vital Role of Food and Nutrition in Healthy Life."* The event will serve as a platform for professionals, researchers, and experts to discuss current developments in food and nutrition. Session topics include public health nutrition, sustainable diets, nutraceuticals, food technology, food waste prevention, food loss reduction, and food safety. Continuing Professional Development (CPD) credits will also be offered to attendees. The final abstract submission deadline is October 26, 2026, while late registration closes on October 24, 2026.

05

The Third International Conference on Accessible Digital Agriculture Technologies (CADAT 2026)

October 25-29, 2026 | Hybrid | Lisbon, Portugal |

CADAT 2026 is part of the SustainableDigitalization 2026 Congress and focuses on accessible digital agriculture technologies. The conference will feature tracks on AI and machine learning in crop management, digital twins for agricultural systems, robotic harvesting and farm automation, smart sensors and IoT integration, as well as AI applications for food safety analytics. The abstract submission deadline is July 6, 2026, while registration closes on September 6, 2026.