Issue 38
May 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

Climate-Smart Pest Management in a Warming World: Science, Policy, and Digital Tools

With up to 40% of global food production already lost to pests annually, a 2°C warming scenario is projected to drive sharp increases in yield losses for wheat, rice, and maize as pests expand their ranges and multiply generations per season. The main review published by CABI argues that pest management must be repositioned as a core pillar of climate-smart agriculture, combining biological control, resistant varieties, habitat management, and early warning systems at farm and landscape scales. A 2025 Nature Reviews Earth & Environment study updates this evidence base, while a 2024 Communications Biology paper addresses the adoption gap through the 3MP framework, which reorients IPM from single-pest tactics to ecosystem-level management. Two technology-focused studies examine how IoT, ML, and AI are improving disease forecasting, including a wearable AR system that improved rice pest identification precision by 14.6% over image-only baselines.

News covers climate observation, AI-enabled crop breeding, carbon credit schemes, and land-sector reporting standards, alongside regional developments from Taiwan on agri-PV systems and bamboo incentives. Policy examines CABI's framework for nature-positive pest management, FAO's finding that disasters caused USD 3.26 trillion in agricultural losses since 1991, and OECD evidence that absolute agricultural GHG levels remain broadly flat despite a 20% decline in emission intensity.

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RESEARCH

01 Theme: GHG Emission Reduction

Climate-smart pest management: building resilience of farms and landscapes to changing pest threats

February 25, 2019 | Journal of Pest Science |

Introduction: Climate change is intensifying crop pest threats globally, disrupting species distribution, outbreak timing, and pest–natural enemy dynamics. Researchers at CABI argue that pest management must become a core pillar of climate-smart agriculture (CSA). With up to 40% of global food production already lost to pests, climate-driven pressures risk increasing pesticide use, raising emissions, and weakening ecological resilience.

Key findings: Climate-smart pest management (CSPM) promotes proactive, locally adapted practices including **crop diversification, resistant varieties, biological control, habitat management, conservation tillage, and early warning systems** to prevent outbreaks and enable timely responses. Farm-level action alone is insufficient; effective CSPM requires coordination across farmers, extension services, researchers, policymakers, and the private sector. Extension systems need strengthening, research institutions must build diagnostic capacity, and governments must provide supportive policies and financial incentives.

Well-implemented CSPM yields co-benefits: reduced yield losses improve food security and farm income, while lower pesticide use supports biodiversity, soil carbon, and reduced emissions. Key barriers include knowledge gaps, funding shortfalls, weak extension services, and context-specific challenges. The authors call for cross-sectoral collaboration to mainstream CSPM into global agricultural and climate policy.

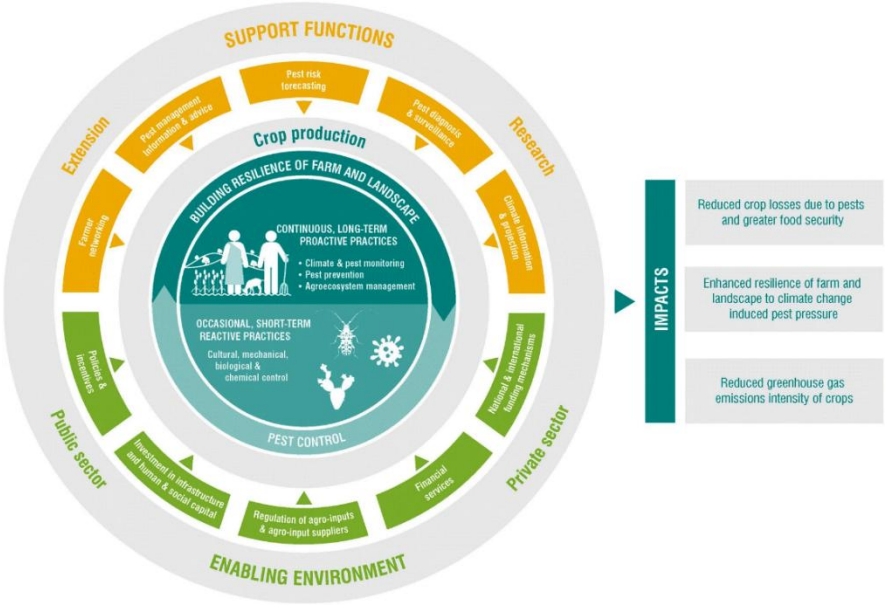


Figure | Climate-smart pest management (CSPM) is an interdisciplinary approach aiming to increase resilience of farms and landscapes to changing pest threats, mitigate greenhouse gas emissions and contribute to food security.

02 Theme: GHG Emission Reduction

Crop pest responses to global changes in climate and land management

April 8, 2025 | Nature Reviews Earth & Environment

Introduction: This review led by researchers at Hebei University and the Chinese Academy of Agricultural Sciences (CAAS) explains how global change is rapidly reshaping crop pest threats. Despite a broader decline in insect biodiversity, many agricultural pests are becoming more damaging as they adapt to warming temperatures, simplified landscapes, and expanding global trade.

Key findings: Warming temperatures are pushing many pests toward higher latitudes and elevations, advancing their seasonal activity, and increasing the number of generations they produce each year. Under a 2°C warming scenario, pest-related yield losses are projected to rise sharply for wheat, rice, and maize. Agricultural intensification compounds these risks: fertilization, irrigation, and simplified landscapes provide better resources for pests while weakening natural enemies that help suppress outbreaks. International trade further accelerates the spread of invasive species. The review highlights how land-use changes interact with climate drivers to alter pest–natural enemy dynamics in complex, difficult-to-predict ways. In response, the authors advocate for **climate-smart pest management (CSPM) integrating climate forecasting, landscape diversification, biological control, resistant crop varieties, and digital tools** including artificial intelligence, drone surveillance, and sensor networks. They frame pest management as a critical strategy not only for protecting yields, but also for reducing unnecessary pesticide use and building long-term agricultural resilience.

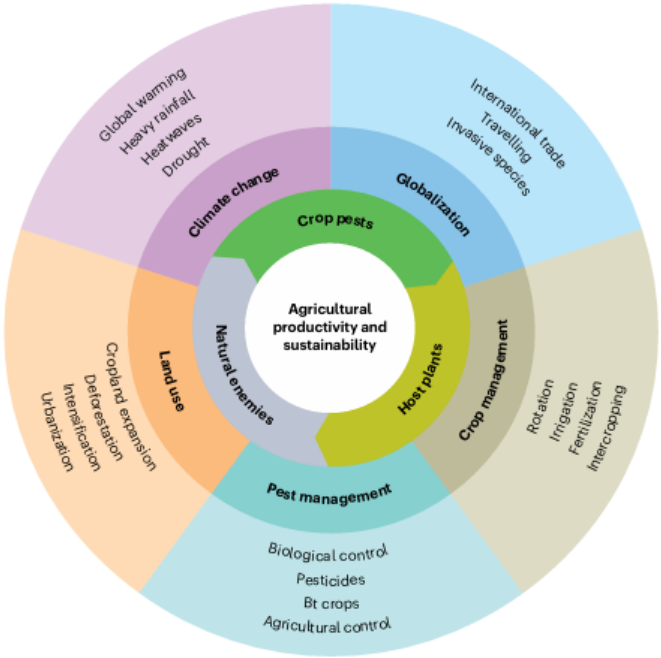


Figure | Global change drivers impacting crop pests.

03 Theme: GHG Emission Reduction

A theoretical framework to improve the adoption of green integrated pest management tactics

March 18, 2024 | Communications Biology |

Introduction: Despite the availability of environmentally friendly pest control options, uptake of green Integrated Pest Management (IPM) remains slow. A multinational research team across China, United States, Australia, and France identifies two structural weaknesses in current IPM practice: limited synergy among existing tactics, and a narrow focus on individual pests rather than the complex, multi-pest realities of real cropping systems. The study proposes a new theoretical framework to reorient IPM toward ecosystem-level thinking and improve adoption of sustainable pest control strategies.

Key findings: The **Multi-Dimensional Management of Multiple Pests (3MP)** framework considers both spatial and temporal dimensions of pest management. It connects soil health, crop systems, pest populations, and natural enemies, while accounting for the full range of pest interactions across different crop growth stages. This approach reframes IPM from a single-pest strategy to an ecosystem-centered system capable of managing multiple pests and pathogens simultaneously. To evaluate whether control strategies are truly effective, the study also proposes a **Performance – Economy – Environment (PEE)** assessment tool. This three-part evaluation considers whether a strategy is agronomically effective, economically viable, and environmentally sustainable—enabling farmers and advisors to make more balanced decisions about which IPM tools to adopt. By integrating biological control, resistant varieties, and non-chemical methods within this broader framework, 3MP offers a pathway toward lower pesticide use, stronger biodiversity protection, and more climate-resilient agriculture. The authors argue that shifting from crop-centered to ecosystem-centered pest management is essential for improving both adoption rates and long-term performance of green IPM.

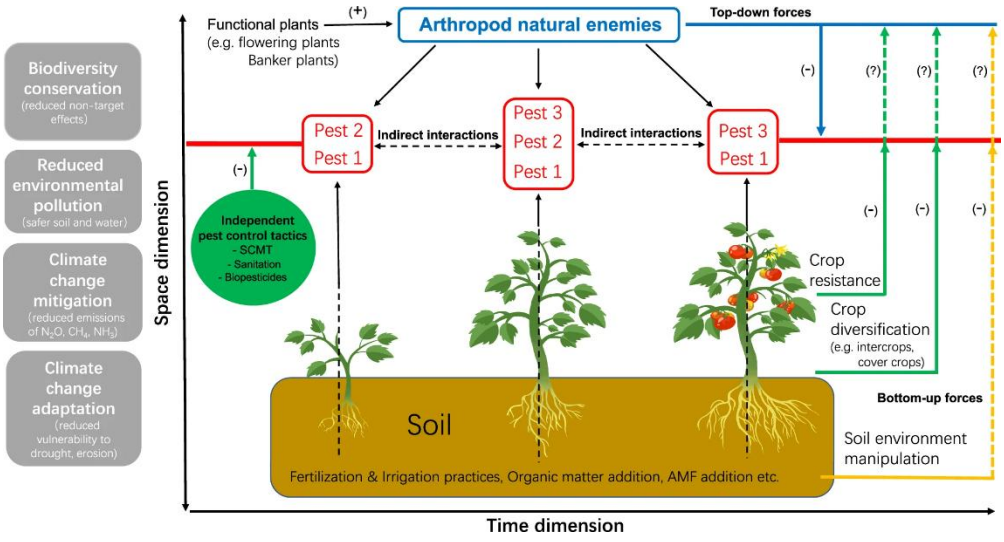


Figure | A new theoretical framework–Multi-Dimensional Management of Multiple Pests (3MP)– enabling a nuanced and holistic approach to the management of multiple pests across the cropping season.

04 Theme: ICT in Agrifood Sustainability

Integrative approaches in modern agriculture: IoT, ML and AI for disease forecasting amidst climate change

June 28, 2024 | Precision Agriculture |

Introduction: Climate change is compounding the challenge of plant disease management by shifting the conditions under which pathogens survive, spread, and cause damage. This review led by researchers at the Swedish University of Agricultural Sciences examines how Internet of Things (IoTs) sensors, machine learning (ML), and artificial intelligence (AI) are being integrated into disease forecasting systems for precision agriculture. The authors survey both data-based and process-based modelling approaches, assessing their capacity to handle climate-driven variability, and argue that the future of effective disease management lies in open, validated, and transparent AI models that can support timely decisions by farmers and agronomists.

Key findings: Digital forecasting systems now combine field sensors, remote sensing, satellite imagery, weather data, and biological knowledge to predict disease risks with greater accuracy than conventional methods. Early warning systems and disease-specific AI models enable farmers to identify risks earlier and time fungicide or other control applications more precisely, reducing unnecessary chemical use while protecting yields. The review highlights the growing use of IoT devices for continuous environmental monitoring, machine learning algorithms for pattern recognition in large datasets, and AI models that simulate complex host – pathogen – environment interactions. These tools are transitioning from research settings into practical farm applications, supported by improvements in connectivity, sensor affordability, and cloud computing. The authors position **IoT, ML, and AI as key enablers of climate-resilient agriculture**, supporting more efficient resource use, lower environmental impacts, and safer food production. Widespread adoption, however, requires investment in rural digital infrastructure, affordable access to technology, and capacity-building for farmers and extension workers to interpret and act on data-driven forecasts.

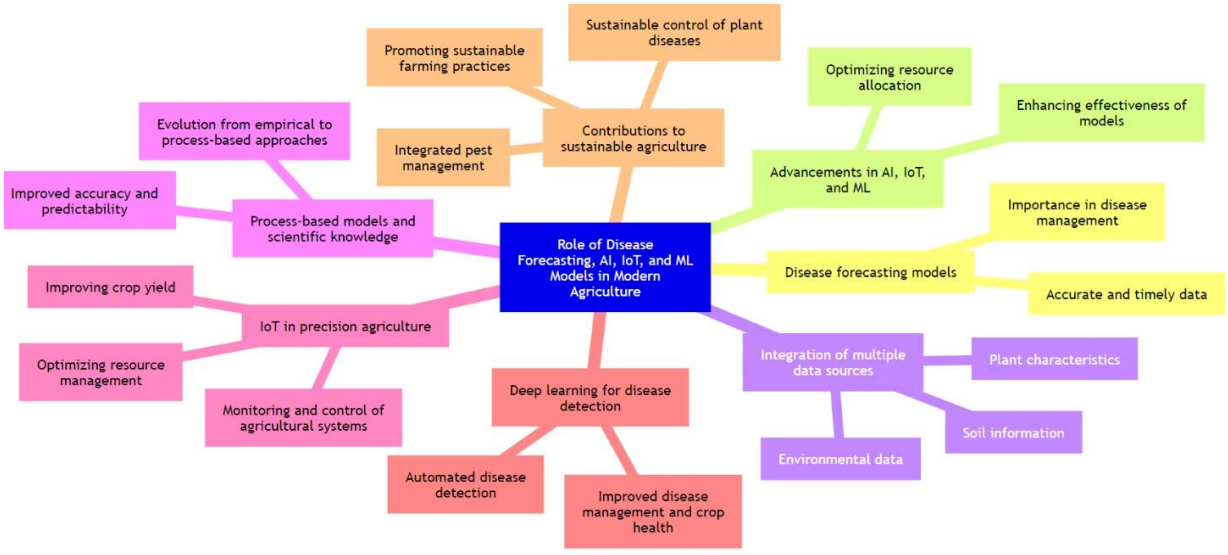


Figure | Diagram overview of the role of disease forecasting, AI, IoT, and ML models in modern agriculture.

05 Theme: ICT in Agrifood Sustainability

Intelligent survey method of rice diseases and pests using AR glasses and image-text multimodal fusion model

May 24, 2025 | Computers and Electronics in Agriculture |

Introduction: Timely and accurate monitoring of rice pests and diseases is essential for limiting production losses estimated at 10–30% of annual yield, yet conventional field survey methods remain labour-intensive and expert-dependent. Researchers at Zhejiang Sci-Tech University and the China National Rice Research Institute (CNRRI) propose an intelligent survey system combining wearable augmented reality glasses with a two-stage image-text multimodal detection model.

Key findings: The proposed RDP-Detector was tested on seven rice diseases and pests, achieving 87.4% mean average precision. Compared with image-only baseline models, precision improved by 14.6% points, demonstrating the measurable added value of combining visual and textual inputs. The AR glasses component provides meaningful practical advantages in real field conditions: hands-free operation reduces physical barriers during survey work, voice control allows device interaction without touching the screen, and the display remains clear under bright sunlight where conventional screens struggle. These features make the system more accessible for frontline agricultural workers in demanding outdoor environments. Beyond detection accuracy, the study demonstrates broader potential for wearable technology and multimodal AI in precision agriculture. More accurate, timely, and scalable pest diagnosis can help reduce unnecessary pesticide applications and support evidence-based crop protection decisions. The authors suggest that similar approaches could be extended to other crops and pest systems, offering a scalable model for intelligent field surveillance in climate-stressed agricultural landscapes.

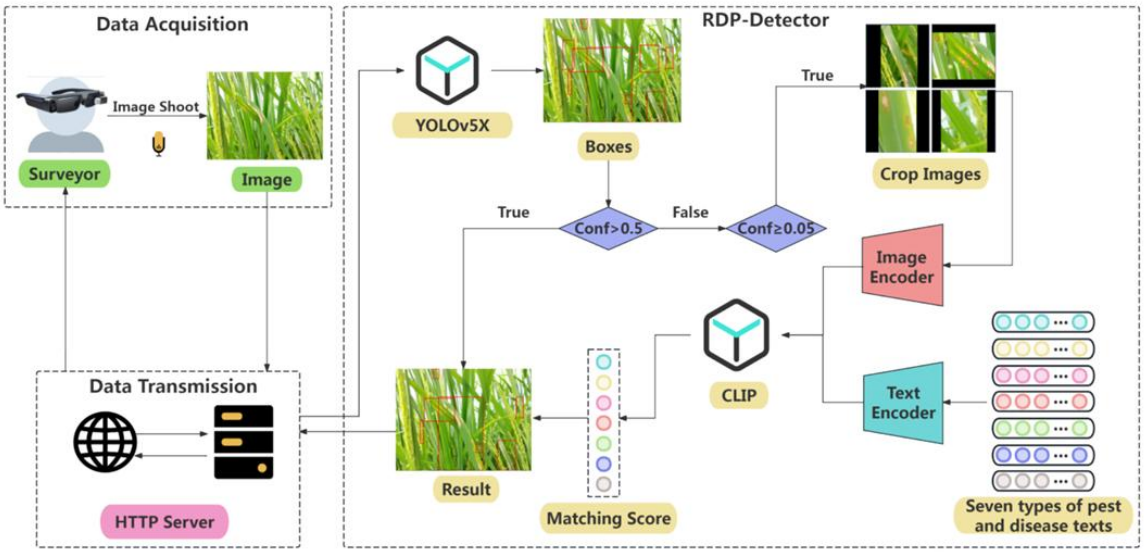


Figure | Roadmap of the AR glasses intelligent survey method technology.

NEWS

01 **THEME:** ICT in Agrifood Sustainability

Observing today, protecting tomorrow: How climate services save livelihoods

March 23, 2026 | Food and Agriculture Organization of the United Nations (FAO) |

Published on World Meteorological Day 2026, this article highlights the critical role of climate and agrometeorological services in protecting agricultural livelihoods as extreme weather events intensify globally. It also describes how weather and climate data is being translated into actionable guidance for farmers and governments in vulnerable regions. In Pakistan, FAO is partnering with the Pakistan Meteorological Department through a USD 47.7 million Green Climate Fund (GCF) project covering 5 million hectares, delivering farm-level advisories via WhatsApp and audio messages to help farmers anticipate floods and heat stress. Globally, FAO's Agricultural Stress Index System (ASIS) monitors satellite-based vegetation health every ten days, identifying drought hotspots in over a dozen countries before crises escalate. FAO frames climate observation not merely as data collection, but as the foundation for anticipatory action and resilience-building across food systems.

02 **THEME:** ICT in Agrifood Sustainability

AI and global food security: A focus on crop breeding

March 26, 2026 | Center for Strategic & International Studies (CSIS) |

The CSIS Global Food and Water Security Program has released a policy analysis examining how AI is transforming crop breeding and its implications for food security. Based on a January 2026 roundtable convening companies, research institutes, and international organizations, the analysis identifies three AI-enabled advantages accelerating the breeding process: improved management of large genetic datasets—including so-called "dark data" locked in genebanks—enhanced data collection and analysis through computer vision and robotics, and novel genomic tools that can significantly shorten variety development timelines beyond the current decade-long cycle. The analysis also highlights risks, including unequal access concentrated in the Global North, regulatory misalignment across countries, and the potential for AI advances to deepen existing agricultural inequities. The authors recommend policies that prioritize foundational science, institutional capacity building for genebanks, coherent biosafety standards, and treating crop breeding technologies as tools for international collaboration in the Global South.

03 **THEME:** GHG Emission Reduction; Policy Incentives, Financing, Pricing

Japanese firms bringing carbon credits to Thailand through greener agriculture

March 31, 2026 | AgNavigator |

Japanese technology firms NEC and Fager have announced a partnership to promote sustainable agriculture in Thailand by combining precision farming solutions with agriculture-derived carbon credit generation. The initiative builds on Fager's model of supporting farmers to adopt emission-reducing practices, integrated with NEC's precision fertilizer system, which tailors fertilizer application to specific field conditions to prevent over-fertilization and cut associated GHG emissions. A central goal is to enable farmers to benefit financially from lower-emission practices through carbon credits based on verified, measurable emission reductions. Fager will support farmers in adopting qualifying practices and build the data and operational systems required to quantify and certify those reductions. Both companies plan to evaluate results from Thailand before exploring expansion into other parts of Asia, with the longer-term aim of establishing a replicable, national-scale framework for low-emission farming and agricultural decarbonization across the region.

04 **THEME:** MRV (Measurement, Reporting, Verification); Policy Incentives, Financing, Pricing

Climate reporting rules for food sector set high bar for regenerative agriculture

April 15, 2026 | Reuters |

The Greenhouse Gas Protocol has published a new Land Sector and Removals Standard (LSRS), establishing consistent rules for food and agriculture companies to measure and report land-based climate impacts. Taking effect in 2027 for firms with significant land-based activities, the standard requires companies to report land-use emissions separately from carbon removal claims, closing a loophole that allowed poor performance in one area to be offset by gains in another. Bioenergy sources such as biomass can no longer be classified as carbon neutral. Companies choosing to report carbon removals must provide evidence of sequestration location, commit to ongoing monitoring, and maintain buffer reserves against carbon reversals such as wildfires. The standard also requires disclosure of agricultural "leakage"—deforestation triggered when production shifts to unprotected areas. While welcomed by brands including Nestlé as a step toward credible climate accounting, stricter monitoring and traceability requirements could render some regenerative agriculture programmes economically unviable.

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

Enhancing the assessment of green architecture of CAP strategic plans

March 30, 2026 | EU CAP Network |

The EU CAP Network has published new guidelines to strengthen the evaluation of environmental and climate instruments within EU Member States' Common Agricultural Policy (CAP) Strategic Plans. Developed by a Thematic Working Group on Evaluation of Environment and Climate Architecture, with support from the European Evaluation Helpdesk, the guidelines address a recognized need: assessing not just whether individual interventions work, but whether the full combination of instruments—including conditionality, eco-schemes, agri-environment-climate commitments, and investments—functions as a coherent system toward the CAP's climate, natural resource, and biodiversity objectives. The guidelines offer evaluation teams structured frameworks for defining scope, selecting indicators, examining synergies and trade-offs between instruments, and assessing cost-effectiveness. A companion Good Practice Workshop held on March 16–17, 2026 in Larnaca, Cyprus, gathered participants from most EU Member States to apply the guidelines in practice and share cross-national evaluation experiences to inform ongoing and future CAP programming periods.

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

NTU team develops foldable OPV system for net-zero greenhouses

April 15, 2026 | National Taiwan University (NTU) | (In Chinese)

A research team led by National Taiwan University (NTU), in collaboration with the Taiwan Agricultural Research Institute (TARI) and National Chung Hsing University (NCHU), has developed a foldable organic photovoltaic (OPV) system that enables greenhouses to approach energy self-sufficiency while maintaining crop productivity. Published in Cell Reports Physical Science on March 18, 2026, the study introduces an automated OPV module that dynamically opens and closes in response to real-time environmental conditions, providing shade during peak heat to reduce thermal load and irrigation demand while optimizing light transmission for photosynthesis. Field trials with melon crops demonstrated that reducing OPV deployment from 24 to 6 hours per day achieved dynamic balance between greenhouse electricity consumption and renewable energy generation without yield loss. The team highlights the technology's potential for integration with AI decision systems to advance a food-energy-water co-optimization model for sustainable facility agriculture.

07 **THEME:** Carbon Sequestration; Policy Incentives, Financing, Pricing

Bamboo production incentives expanded to 100,000 hectares

March 30, 2026 | Commercial Times | (In Chinese)

Taiwan's Ministry of Agriculture (MOA) has revised its bamboo forest production and renewal incentive framework, expanding the eligible area from 32,500 to 100,000 hectares across all forestry land nationwide. The revision broadens the original scheme—previously limited to restricted felling zones in Indigenous reserves—and introduces a production-oriented incentive structure that links subsidies directly to volumes of harvested bamboo, rather than rewarding felling activity alone. The Forestry and Nature Conservation Agency noted that bamboo's 4-year growth cycle and superior carbon sequestration capacity compared to conventional timber make it a strategic resource for Taiwan's net-zero pathway. Annual bamboo output had fallen sharply from a peak of 18 million culms to just 1.05 million culms by 2024, driven by shifting domestic habits, labor shortages, and international competition. The revised framework aims to revitalize the bamboo industry, strengthen forestry ecosystem functions, and support rural economic development.

POLICY

01 THEME: Climate Smart Agriculture; Nature-based Solutions

Climate-Smart Pest Management for Nature-Positive Agriculture

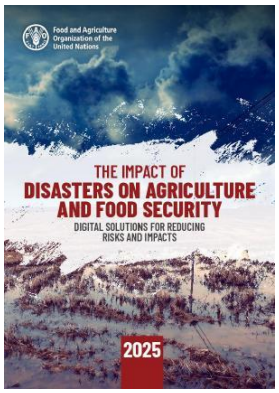
CABI | Source | Report |

Climate-Smart Pest Management (CSPM) is an integrated framework designed to align pest management with the triple objectives of climate adaptation, mitigation, and sustainable productivity. The briefing argues that conventional pest control approaches are structurally ill-suited to handle climate-driven shifts in pest dynamics, including changes in pest distribution, outbreak timing, and disruption of pest-natural enemy relationships. CSPM positions biological control and Integrated Pest Management (IPM) as core nature-based tools capable of reducing pesticide use and associated emissions while sustaining crop yields. To operationalise this framework, the briefing calls for investment in digital early warning systems to enable timely, evidence-based responses to climate-induced pest outbreaks, and for the development of climate-responsive national extension services capable of delivering scientific advances to farmers in practice. A key challenge highlighted is the persistent structural gap between the pace of scientific progress in pest management and the capacity of extension systems to translate this knowledge into actionable farm-level guidance—particularly in regions where advisory services remain underfunded and insufficiently equipped for climate-adaptive support.

02 THEME: Climate Smart Agriculture; Sustainable Production

The Impact of Disasters on Agriculture and Food Security 2025

Food and Agriculture Organization of the United Nations (FAO) | Source | Report |



This FAO flagship report quantifies the scale of disaster-related agricultural losses over three decades and examines how digital technologies can reduce vulnerability. Between 1991 and 2023, disasters caused an estimated USD 3.26 trillion in global agricultural production losses, with annual losses rising from USD 64 billion in the 1990s to USD 144 billion in recent years. Climate-related hazards account for approximately USD 2.9 trillion of total losses, disproportionately affecting Asia, which bears 47% of global agricultural losses, and Africa, where losses average 7.4% of agricultural GDP. Cumulative cereal production losses reached 4.6 billion tonnes—equivalent to 320 kilocalories per person per day globally—while marine heatwaves alone caused USD 6.6 billion in fisheries and aquaculture losses. The report makes a compelling case for anticipatory action: every USD 1 invested in early action generates approximately USD 7 in returns through avoided losses. Digital tools are highlighted as critical enablers, with 9.1 million farmers now accessing parametric insurance through digital platforms. The report also identifies human-centred design as essential for developing inclusive and scalable digital solutions across diverse

farming contexts. Its findings are positioned within the broader global frameworks for disaster risk reduction and sustainable development, reinforcing the case for aligning national agricultural resilience strategies with the Sendai Framework for Disaster Risk Reduction 2015–2030 and the 2030 Agenda for Sustainable Development.

03 THEME: Sustainable Production; Net Zero Strategy

Environmental Performance of Agriculture in OECD Countries 2026

Organisation for Economic Co-operation and Development (OECD) | Source | Report |

This OECD report assesses environmental trends across member countries from 1990 to 2023, tracking progress in decoupling agricultural production from its environmental impact. Agricultural output grew by 33% while cultivated area contracted by 11%, reflecting meaningful efficiency gains, and GHG emission intensity per unit of output declined by 20%—from 1.6 to 1.25 kg CO_2e per USD—with some countries achieving absolute decoupling since 2018. However, the annual rate of improvement has slowed sharply from 1.2% to 0.4% per year, and absolute GHG levels remain broadly stable, indicating that efficiency gains alone are insufficient to meet net-zero commitments. Progress on nutrient management is similarly mixed: nitrogen and phosphorus fertiliser use has declined at 0.24% and 0.53% per year, respectively, yet nutrient use efficiency plateaued in the mid-2010s. Ammonia emissions decreased in 24 OECD countries but increased in 10. Biodiversity trends are also concerning, with farmland bird populations declining in 22 of 27 reporting countries between 2013 and 2023. The report identifies several specific areas requiring more targeted policy action: improving nutrient use efficiency through tighter fertiliser regulations and precision application support; extending agri-environmental schemes to halt and reverse farmland biodiversity loss; and setting measurable GHG reduction targets for agriculture within national climate strategies to close the gap between efficiency improvements and absolute emission reductions. The findings underscore that further decoupling will require policy packages that simultaneously address emissions, nutrient management, and biodiversity—rather than treating each as a separate regulatory concern.

EVENT

01

The 3rd Congress on Sustainable Agriculture and Food Security (COSAFS 2026)

August 3–6, 2026 | In-person | Sarawak, Malaysia |

COSAFS 2026 is organized by the Faculty of Agricultural and Forestry Sciences at Universiti Putra Malaysia Sarawak (UPM Sarawak) under the theme *"Feeding the Future, Fostering Sustainable Food."* The congress serves as a platform for four concurrent international conferences: the 4th International Scientific Conference on Indigenous Crops (4th ISCIC 2026), the 3rd International Conference on Fisheries and Animal Sciences (3rd FISAS 2026), the 3rd International Conference on Food and Industrial Crops (3rd ICFIC 2026), and the 18th International Society for Nutraceuticals and Functional Foods Conference (ISNFF 2026). Collectively, these conferences address sustainable crop management, climate-resilient food systems, fisheries and livestock productivity, bio-based innovations in industrial crops, and the role of nutraceuticals in nutrition and health. The call for abstracts closes by June 30, 2026, with regular registration open until July 1, 2026.

02

CANVAS 2026: Where Crop, Agronomic, Environmental, and Soil Sciences Connect

November 1–4, 2026 | Hybrid | Portland, OR, USA |

CANVAS 2026 is organized jointly by the American Society of Agronomy (ASA), the Crop Science Society of America (CSSA), and the Soil Science Society of America (SSSA), bringing together more than 4,000 researchers, practitioners, students, and industry professionals to advance agronomic, crop, and soil sciences. The conference features keynote sessions, over 3,000 abstract presentations, hands-on workshops, field tours, student career programs, and an exposition of the latest agricultural innovations. Framed as *"the nexus of earth and science for shaping the future of agronomy,"* CANVAS bridges academic research, industry leadership, and the next generation of scientists, with dedicated programming for professionals, researchers, and students at all career stages. The final submission of abstracts is due by June 23.

03

The 31st United Nations Climate Change Conference (COP31)

November 9–20, 2026 | Hybrid | Antalya, Türkiye |

COP31 is the annual supreme decision-making body of the United Nations Framework Convention on Climate Change (UNFCCC), with Türkiye serving as physical host and Australia leading negotiations. Convening under the theme *"Era of Implementation,"* COP31 marks the transition from multilateral commitment-making to verifiable national delivery, building directly on the outcomes of the Global Stocktake completed at COP28, the New Collective Quantified Goal (NCQG) adopted at COP30, and the synthesis of the second round of Nationally Determined Contributions (NDCs 3.0). Key agenda items include scrutiny of NDC ambition against the 1.5°C pathway, operationalization of the NCQG climate finance architecture, advancement of the Global Goal on Adaptation (GGA), implementation of Loss and Damage funding mechanisms, and finalisation of Article 6 carbon market rules. A Pacific Pre-COP meeting and a dedicated high-level session on Small Island Developing States (SIDS) will be held alongside the main conference.

04

The 17th Biennial International Conference on EcoBalance 2026

November 10–13, 2026 | In-person | Nagoya, Japan |

EcoBalance 2026 is organized by the Institute of Life Cycle Assessment, Japan (ILCAJ). Held under the theme *"Sustainability Hacks for Planetary Health,"* the biennial conference serves as a leading international forum on life cycle assessment (LCA) methodology and its applications in sustainability science and environmental decision-making. The previous edition of EcoBalance attracted 625 participants and 402 presenters from 29 countries and regions, reflecting the conference's established role as a key venue for the global LCA community. EcoBalance 2026 is also supported by prominent academic and industry sponsors, underscoring the strong industry engagement in LCA-based approaches to net-zero and circular economy transitions. Registration opens July 1, 2026, with regular registration closing October 23, 2026.

05

International Conference on Agriculture and Horticulture (ICAH 2026)

November 23–25, 2026 | Hybrid | Singapore |

ICAH 2026, under the theme *"Cultivating Innovation in Agriculture and Horticulture,"* brings together researchers, academicians, industry professionals, policymakers, and young scientists to address global challenges including food security, climate change, resource efficiency, and sustainable rural development. The scientific programme covers diverse areas such as crop science, horticultural innovations, precision agriculture, agri-biotechnology, soil and water management, post-harvest technologies, smart farming, and sustainable agri-food systems, presented through keynote lectures, plenary sessions, oral and poster presentations, panel discussions, and interactive workshops. ICAH 2026 is designed to bridge the gap between scientific discovery and practical application, with both in-person participation in Singapore and a robust online option available to global attendees. The first round of abstract submissions closes on June 15, 2026, and early-bird registration closes on June 16, 2026.