Issue 41
August 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

Smarter nutrient management for a low-carbon future

The shift toward low-carbon agriculture is increasingly shaped by how nutrients are managed—from the fertilizers applied to the soil to new technologies that help crops use nutrients more efficiently. Improving nutrient-use efficiency is becoming an important pathway for reducing agricultural emissions while maintaining productivity and supporting healthier soils.

In this issue, we explore how smarter nutrient management is opening new possibilities for low-carbon agriculture. From improving the way fertilizers release and deliver nutrients to harnessing biochar, precision technologies, and biological nitrogen fixation, these innovations are helping bring nutrient supply more closely in line with crop needs. Together, they offer practical pathways to reduce nitrogen losses and greenhouse gas emissions, improve nutrient-use efficiency, and sustain crop productivity while building healthier and more resilient soils.

Beyond the field, the transition is also being shaped by digital innovation, policy, finance, and wider efforts to strengthen agricultural resilience. From smarter nitrogen management and sustainable resource use to climate finance and soil carbon initiatives, the developments featured in this issue show that moving toward low-carbon agriculture requires not one solution, but a combination of better technologies, management practices, and enabling systems.

Contents

NEWS

01 THEME: Policy Incentives, Financing, Pricing

Commission allocates €540 million in support to farmers facing the fertilizer and energy crisis arising from the Middle East crisis

17 July 2026 | European Commission – Directorate-General for Agriculture and Rural Development |

In response to rising fertilizer and energy prices driven by the Middle East crisis, EU Member States have approved the European Commission's €540 million emergency support package to help farmers cope with increasing production costs. The funds will be allocated among Member States, with priority given to the agricultural sectors and products most severely affected. The support is intended to compensate farmers for economic losses caused by higher input costs, particularly fertilizer and energy expenses, while easing financial pressure and helping maintain agricultural production.

Content adapted from European Commission | Image source: Al Jazeera

02 THEME: ICT in Agrifood Sustainability

6th Yunlin County Smart Agriculture University graduation ceremony showcases achievements in smart agriculture

17 July 2026 | Central News Agency |

Agriculture in Yunlin is becoming smarter and more resilient. Since 2020, the Yunlin County Smart Agriculture University has helped farmers build skills in technology, branding, marketing, and sustainable farming. This year, 36 participants completed 284 hours of training, including smart agriculture, AI applications, financial management, and climate resilience.

The program emphasizes hands-on learning through farm visits, workshops, and one-on-one mentoring, helping farmers apply new tools to real-world challenges. With more than 2,500 participants trained to date, the program is helping shape a new generation of farmers who can combine agriculture, technology, and business to build a more sustainable future.

Content adapted from Central News Agency | Image source: Central News Agency

03 THEME: Others

Taiwan strengthens agricultural resilience through early warning and water management (Chinese)

5 June 2026 | Central News Agency |

Taiwan is strengthening agricultural resilience in response to increasing climate extremes, with Agriculture Minister Chen Junne-jih highlighting efforts in disaster early warning, water management, climate-resilient crops and agricultural insurance. Taiwan now operates 246 agricultural weather stations, while the integrated Yunlin-Chiayi-Tainan irrigation system is expected to add around 70 million metric tons of usable water annually and reduce irrigation suspension risks across 74,500 hectares of farmland. The government will also expand protected cultivation, ecosystem conservation and forest fire monitoring to further strengthen climate adaptation.

Content adapted from Central News Agency | Image source: Central News Agency

04 THEME: Carbon Sequestration

Taiwan partners to advance agricultural soil carbon sinks

5 June 2026 | China Times

Farmland may soon play a role beyond food production—as part of the climate solution. The Taiwan Carbon Solution Exchange (TCX) and the Taiwan Agricultural Research Institute (TARI) have signed an MOU to expand carbon sink efforts from forests to farmland. Through practices such as crop rotation, reduced fertilizer use, and reduced tillage, the partnership aims to connect soil carbon with corporate ESG strategies and carbon markets. Reliable measurement, verification, and long-term carbon storage will be key to turning that potential into market value.

Content adapted from China Times | Image source: China Times

05 THEME: Others

Evidence from Nigeria highlights regenerative agriculture as a climate adaptation tool for smallholder farmers

16 July 2026 | The Guardian Nigeria |

Climate change is making farming increasingly unpredictable. In a recent interview with The Guardian Nigeria, Dr. Godwin Atser, Country Director of the Sasakawa Africa Association (SAA) in Nigeria, highlighted how regenerative agriculture is helping smallholder farmers adapt. Through practices such as mulching, crop rotation, reduced tillage, and agroforestry, farmers can restore soil health, improve water retention, and strengthen climate resilience. From 2019 to 2025, these practices helped increase rice, maize, and cassava yields by 95%, 88%, and 29%, respectively, while reducing soil erosion by 74%—showing that healthier soils can support both productivity and resilience in a changing climate.

Content adapted from The Guardian Nigeria | Image source: businessday

06 THEME: GHG Emission Reduction

Scaling up sustainable rice straw management requires coordinated technologies and markets

5 June 2026 | Rice Today |

Open-field burning is fast and convenient, but it causes air pollution and greenhouse gas emissions. IRRI argues that farmers burn straw not simply by choice, but because of limited machinery, wet fields, transport difficulties, and weak market demand. Therefore, scaling alternatives requires more than bans on burning or new machinery. Rice straw must become a valuable resource for products such as animal feed, compost, and biochar. The key is to build a complete value chain—from collection and transport to processing and markets—so that avoiding burning becomes economically practical for farmers.

Content adapted from Rice Today| Image source: Rice Today

07 THEME: ICT in Agrifood Sustainability

Digital agriculture could transform nitrogen management in India's rice systems

22 July 2026 | Rice Today |

India has the world's largest rice-growing area, but more fertilizer does not necessarily mean better results. Nitrogen-use efficiency has fallen from nearly 50% to about 42%, increasing costs and environmental impacts. To address this, IRRI is using digital soil mapping, sensors, drones, and satellite imagery to help farmers apply fertilizer based on what their fields actually need. One key technique is urea deep placement (UDP), which places fertilizer closer to rice roots, helping reduce nitrogen loss and improve fertilizer efficiency. The results show a simple idea with big potential: smarter fertilizer use can mean less waste and better yields.

Content adapted from Rice Today | Image reproduced from Arbab Ali

08 THEME: GHG Emission Reduction; Policy Incentives, Financing, Pricing

FAO members approve Global Plan of Action for Sustainable Livestock Transformation

24 July 2026 | FAO |

As global populations and incomes grow, so does the demand for meat, eggs, milk and other animal-source foods, making livestock increasingly important for nutrition, food security and farmers' livelihoods. At the same time, livestock production faces growing challenges, from animal diseases and antimicrobial resistance to greenhouse gas emissions, biodiversity loss, and soil and water pollution. To better balance these needs and challenges, FAO's Global Plan of Action for Sustainable Livestock Transformation (GPA) provides a shared direction for making livestock systems more sustainable. It focuses on food and nutrition, livelihoods, animal health, and climate and natural resources, with actions ranging from better feed management and disease prevention to reducing the need for antimicrobials, strengthening climate mitigation and adaptation, and improving the sustainable management of rangelands and pastures.

Content adapted from FAO | Image reproduced from Nature Synch

09 THEME: Policy Incentives, Financing, Pricing

New report maps definitions and frameworks for net-zero, nature-positive finance

16 July 2026| Climate Policy Initiative |

Climate change and nature loss are increasingly interconnected, yet definitions of "net zero" and "nature positive" still vary across financial frameworks, taxonomies, and tracking methodologies. A new Climate Policy Initiative (CPI) report reviews literature from 2007 to 2025 to map existing definitions and frameworks for Net-Zero Nature-Positive (NZNP) finance, identifying areas of convergence and key gaps. As the first research output of the **Net-Zero Nature-Positive Accelerator Integrated Programme (NZNPA IP)**, the report provides a common foundation for integrating climate and nature into financial strategies, strengthening investment signals, and enabling more consistent tracking of finance toward both climate and nature goals.

Content adapted from Climate Policy Initiative| Image source: leafr

10 THEME: Policy Incentives, Financing, Pricing

Green Climate Fund approves $52.5 million to restore Fiji's forest landscapes

1 July 2026 | FAO |

The Green Climate Fund (GCF) has approved USD 52.5 million for a seven-year FAO-supported initiative to restore Fiji's forest and agricultural landscapes. Using a "ridge-to-reef" approach, the project connects forests, farmland, rivers and coastal ecosystems while promoting agroforestry to strengthen climate resilience and rural livelihoods. More than 80,000 hectares of forest and agricultural land will benefit from restoration or improved management, alongside protection of over 90,000 hectares of coastal ecosystems. The initiative highlights how climate finance can integrate agriculture, forest restoration, conservation and food security.

Content adapted from FAO| Image source:GEF

RESEARCH

01 Theme: GHG Emission Reduction

Optimizing fertilization strategies for low-carbon agriculture: Balancing greenhouse gas mitigation, soil health, and productivity

September 2025 |Results in Engineering | Volume 27,

Introduction: Agricultural fertilizer use is essential for maintaining crop productivity but is also an important source of greenhouse gas (GHG) emissions, particularly nitrous oxide (N_2O) associated with nitrogen fertilizer production and soil nitrification–denitrification processes. Excessive or poorly managed fertilization can further reduce nutrient-use efficiency, impair soil health, and limit long-term soil organic carbon (SOC) storage. Therefore, low-carbon agriculture requires fertilization strategies that simultaneously reduce GHG emissions, enhance soil carbon sequestration, maintain soil health, and sustain crop yields. This review evaluates conventional, organic, and biofertilizers, as well as enhanced-efficiency and controlled-release fertilizers, nitrification inhibitors, biochar, integrated nutrient management, and precision fertilization technologies to identify strategies that balance emission mitigation, SOC enhancement, and agricultural productivity.

Key findings: The study highlights the need to balance GHG emission reduction, soil carbon sequestration, and crop productivity in fertilizer management. Although conventional nitrogen fertilizers can increase crop yields, excessive application can increase N_2O emissions and reduce soil health over time. Organic amendments and biofertilizers can improve SOC, soil structure, microbial activity, and nutrient cycling, but their effects depend on proper management. The review suggests that integrated nutrient management is particularly effective. Combining organic and inorganic fertilizers with controlled-release fertilizers, nitrification inhibitors, biochar, microbial amendments, and precision fertilization can reduce emissions and improve nutrient-use efficiency while maintaining soil carbon and crop yields. Precision tools, including sensors, GIS, variable-rate application, and AI, can also help farmers apply fertilizer more efficiently and avoid unnecessary inputs.

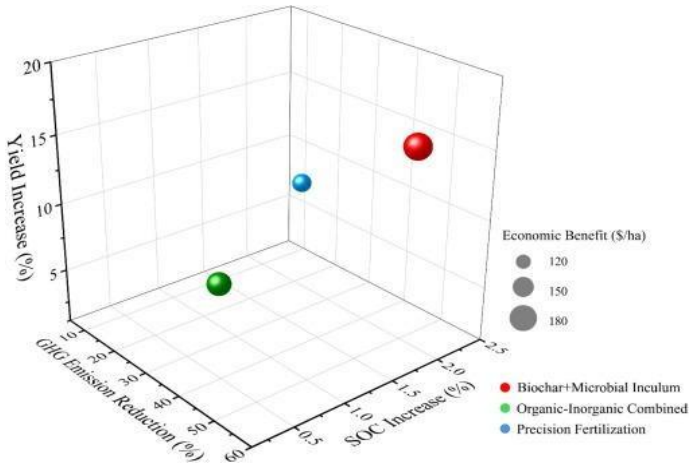


Figure | The diagram compares agricultural practices in terms of **GHG emission reduction, SOC increase, and crop yield improvement**, highlighting their overall benefits for low-carbon agriculture.

Content adapted from Liu et al. | Figure reproduced from the original article

02 Theme: GHG Emission Reduction

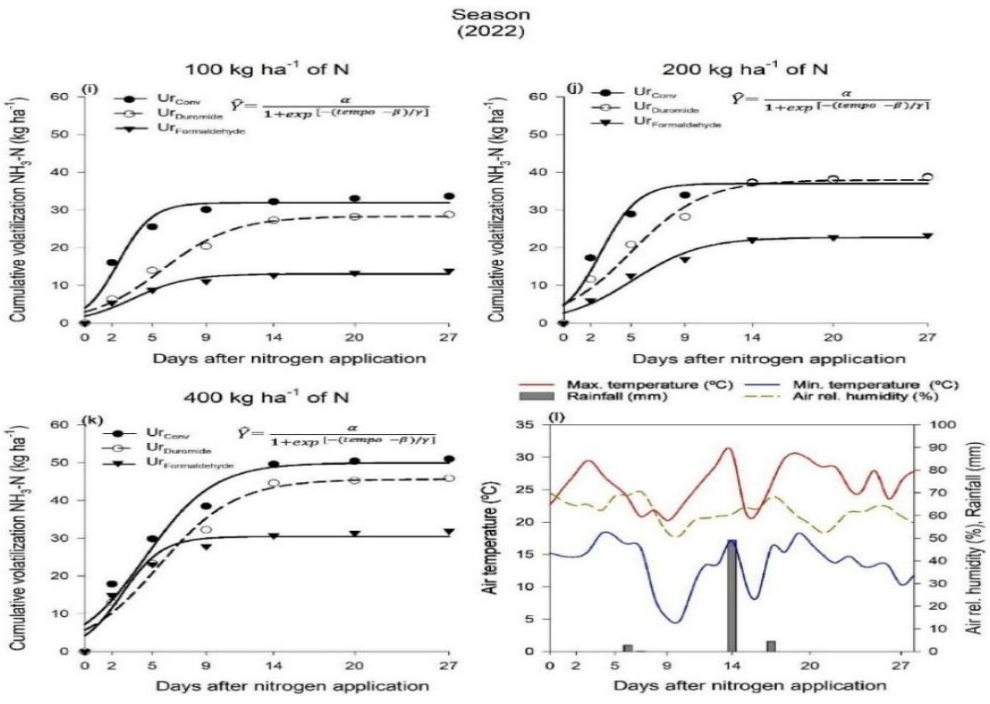
Potential of enhanced-efficiency nitrogen fertilizers in reducing nitrogen and carbon losses in a sandy soil integrated crop-livestock system

December 2024 |Journal of Environmental Management| Volume 371

Introduction: Conventional urea is widely used because of its high nitrogen content and low cost, but substantial nitrogen can be lost through ammonia (NH_3-N) volatilization, reducing fertilizer efficiency and increasing environmental impacts. This three-year field study evaluated whether enhanced-efficiency fertilizers—NBPT + Duromide-treated urea and slow-release urea-formaldehyde—could reduce NH_3-N losses and CO_2 emissions compared with conventional urea in a sandy-soil integrated crop–livestock system (ICLS) in Brazil.

Key findings: Conventional urea produced the highest NH_3-N losses, reaching up to 33% of applied N. Urea-formaldehyde showed the most consistent performance, reducing NH_3-N losses by approximately 45–57% across the three years and CO_2 emissions by up to 8% compared with conventional urea. NBPT + Duromide initially reduced NH_3-N losses by about 52%, but its effectiveness declined substantially over time, indicating that enhanced-efficiency fertilizer performance can vary with environmental and management conditions, particularly the presence of crop residues in ICLS.

Figure| Cumulative NH_3-N volatilization from three N fertilizers (UrConv, UrDuromide, and UrFormaldehyde) at 100, 200, and 400 kg N ha^{-1} during 2020–2022, with corresponding climatic conditions.



Content adapted from Oliveira et al. | Image reproduced from the original article

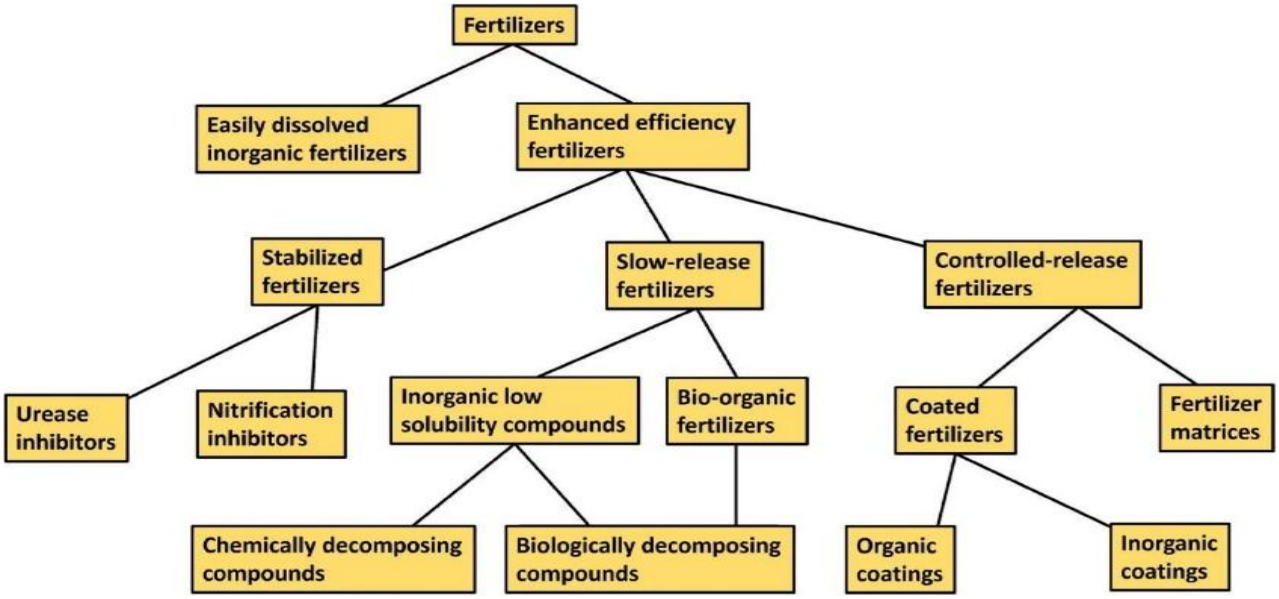
03 Theme: GHG Emission Reduction

Enhanced efficiency fertilizers: Overview of production methods, materials used, nutrients release mechanisms, benefits and considerations

October 2024 | Environmental Pollution and Management | Volume 1

Introduction: Chemical fertilizers have been essential to boosting food production worldwide, but nutrients that crops fail to take up can be lost to the atmosphere or waterways, leading to greenhouse gas emissions, water contamination, soil degradation, and higher farming costs. In this review, Asadu and colleagues looked at how enhanced-efficiency fertilizers (EEFs) are produced, how they regulate nutrient release, and how they may contribute to more sustainable farming. The review covers slow- and controlled-release fertilizers, stabilized fertilizers, and products that use coatings or chemical inhibitors.

Key findings: The review finds that enhanced-efficiency fertilizers (EEFs) can release nutrients more gradually or slow nitrogen transformations, helping nutrient supply better match crop demand. This improves fertilizer-use efficiency and reduces losses through ammonia volatilization, nitrate leaching, and greenhouse gas emissions while maintaining crop productivity. However, some coated fertilizers remain costly, and the synthetic polymers and solvents used in their production may create additional environmental impacts. Their performance can also vary depending on soil type, crop, climate, and product quality. The authors therefore emphasize developing affordable, biodegradable coating materials; improving field performance consistency; and selecting fertilizers suited to local soil and crop conditions, alongside organic inputs, biofertilizers, and precision nutrient management, to support climate-smart and low-carbon agriculture.



Figure| Enhanced efficiency fertilizers.

Content adapted from Asadu et al. | Figure reproduced from the original article

04 Theme: GHG Emission Reduction

Fully bio-based polyurethane coating for environmentally friendly controlled release fertilizer: Construction, degradation mechanism and effect on plant growth

March 2025 | Industrial Crops & Products | Volume 225

Introduction: Controlled-release fertilizers (CRFs) can improve nutrient-use efficiency by gradually releasing nutrients according to crop demand. However, conventional CRFs commonly use petroleum-based polymer coatings that are non-renewable and difficult to degrade, potentially accumulating as microplastics in soil and affecting soil properties and plant growth. Although bio-based polyurethane coatings have been developed from renewable materials such as vegetable oils, lignin, starch, and cellulose, most replace only the soft segment, while the hard segment still relies on poorly degradable, petroleum-based aromatic isocyanates. To address this limitation, the study developed a fully bio-based polyurethane coating (CO-LTI) using renewable castor oil and lysine-derived LTI and evaluated its controlled-release performance, soil biodegradation mechanism, and effects on Chinese cabbage growth and soil bacterial communities.

Key findings: The fully bio-based CO-LTI coating successfully controlled N release through a physical-barrier effect. Increasing the coating percentage from 3% to 6% increased coating thickness from 19–22 μm to 42–51 μm and extended the time for >80% N release from approximately 5 to 11 days. In soil, CO-LTI progressively degraded and reached 27% weight loss after 12 months, with **SEM (Scanning Electron Microscopy), AFM (Atomic Force Microscopy)**, and **XPS (X-ray Photoelectron Spectroscopy) analyses** indicating surface erosion, pore formation, oxidative degradation, and microbial involvement. Low coating concentrations promoted Chinese cabbage seed germination, whereas higher concentrations after degradation slightly inhibited plant growth. Coating degradation also altered the abundance, diversity, and composition of soil bacterial communities. Overall, CO-LTI shows potential as a renewable and biodegradable coating for environmentally friendly CRFs, although its long-term impacts on plants and soil ecosystems require further evaluation.

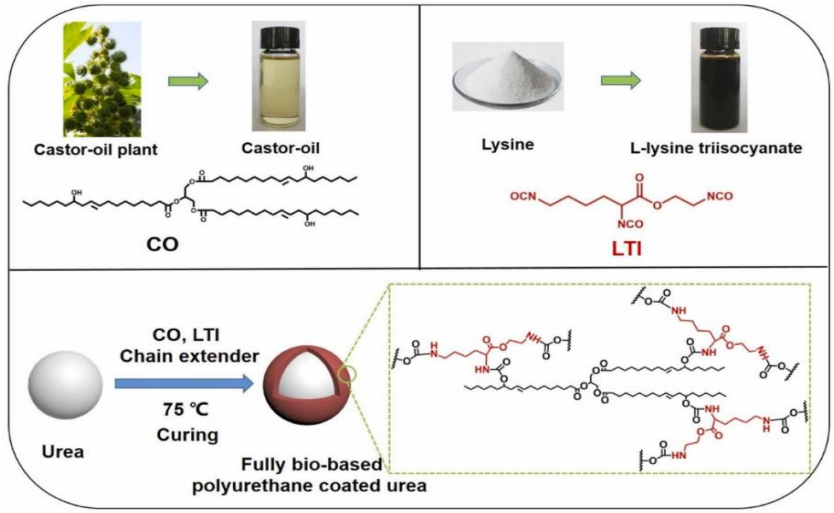


Figure |Synthesis process of CO-LTI and preparation route of coated urea.

Content adapted from Dong et al. | Figure reproduced from the original article

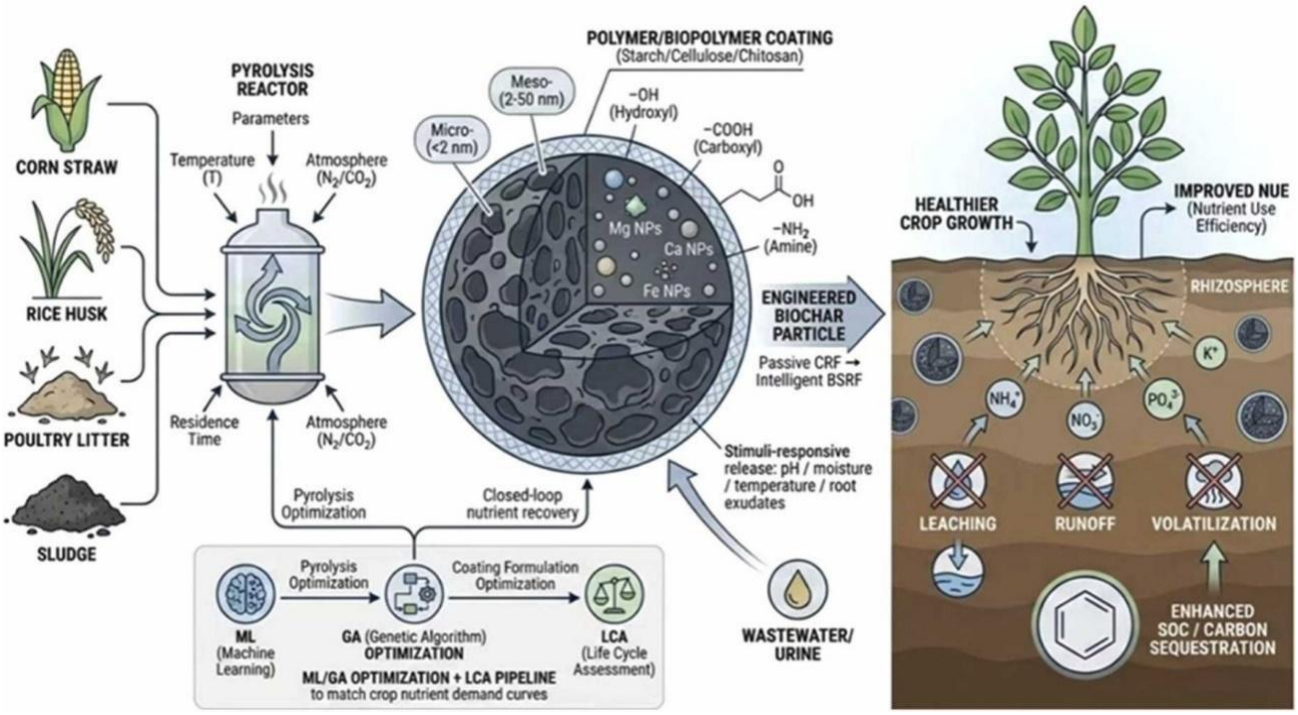
05 Theme: GHG Emission Reduction

Biochar-based slow-release fertilizers: From nutrient carrier to intelligent regulator in soil-plant systems-a review and perspective

April 2026 | Journal of Environmental Chemical Engineering |Volume 14

Introduction: Conventional fertilizers release nutrients rapidly and often fail to synchronize nutrient availability with crop demand, resulting in substantial nutrient losses through leaching, volatilization, and runoff, as well as associated water pollution and greenhouse gas emissions. Traditional controlled-release fertilizers can reduce these losses but generally rely on passive diffusion and fixed release patterns. Biochar-based slow-release fertilizers (BSRFs) offer a more advanced approach because biochar's porous structure, high surface area, and surface functional groups enable nutrient retention and controlled release while also improving soil properties. This review examines the transition of BSRFs from passive nutrient carriers to intelligent regulators that respond to rhizosphere conditions and coordinate nutrient supply, carbon sequestration, nutrient cycling, and microbial processes.

Key findings: BSRFs can improve nutrient-use efficiency by regulating nutrient release through physical barriers, chemical interactions, and ion exchange, while emerging pH-, moisture-, and temperature-responsive designs could better synchronize nutrient supply with crop demand. Beyond nutrient delivery, BSRFs can support nutrient recycling, improve soil health and rhizosphere microbial activity, enhance carbon sequestration, and potentially reduce greenhouse gas emissions. However, long-term field validation, economic and life-cycle assessments, and ecological safety evaluations are still needed before widespread application.



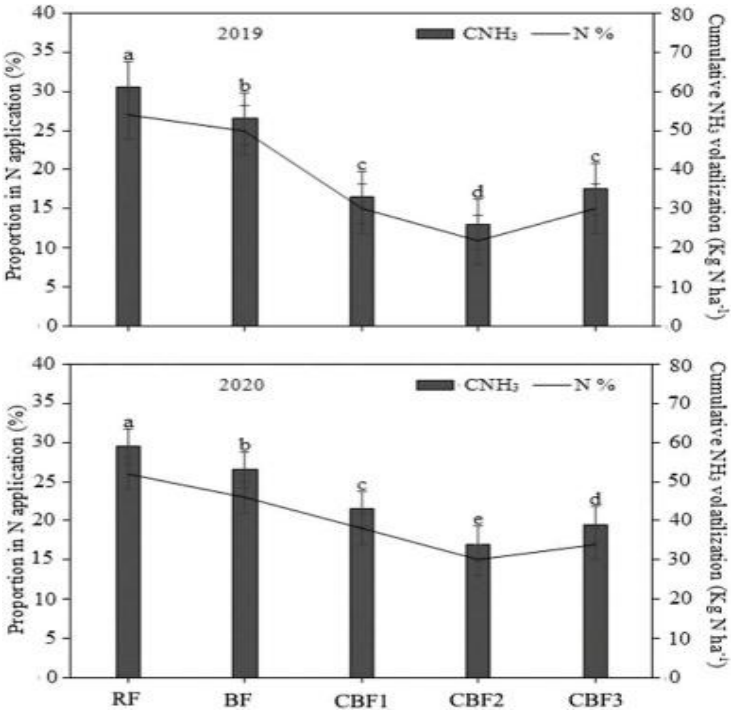
Content adapted from Liang et al. | Figure reproduced from the original article

06 Theme: GHG Emission Reduction

Subsurface placement of controlled-release blended fertilizers mitigates ammonia volatilization by promoting nitrogen transformation in rice fields

July 2025 | Agriculture, Ecosystems and Environment |Volume 386

Introduction: Intensive rice production relies heavily on chemical fertilizers, particularly nitrogen (N), but substantial N losses through ammonia (NH_3) volatilization can reduce nitrogen-use efficiency and cause environmental pollution. Controlled-release blended fertilizers (CBF) can provide a gradual and balanced supply of nutrients that better matches crop demand, potentially improving nutrient availability while reducing losses. However, the effects of CBF containing different sources and ratios of phosphorus (P) and potassium (K) on N transformation and NH_3 volatilization in rice fields remain insufficiently understood. This two-year field study therefore investigated whether CBF could regulate soil enzyme activities and N transformation, reduce NH_3 volatilization, improve plant N uptake and N-use efficiency, and ultimately enhance rice growth and yield.



Key findings: Controlled-release blended fertilizers (CBF) improved N utilization and reduced NH_3 losses in rice fields. CBF2, with a 50% reduction in potassium chloride, performed best, reducing cumulative NH_3 volatilization by 64% in 2019 and 38% in 2020, while increasing plant N uptake by 44% and 34%, respectively. CBF also enhanced N-metabolism enzymes and genes involved in N transport and assimilation, improving N availability and utilization. As a result, grain yield increased by 9.7–17.5% in 2019 and 3.1–8.2% in 2020, demonstrating the potential of CBF to reduce N losses while improving rice productivity.

Figure | Controlled-release blended fertilizers (CBF) reduced cumulative NH_3 volatilization compared with regular fertilization (RF), with **CBF2 showing the greatest reduction—64% in 2019 and 38% in 2020**. Different letters indicate significant differences among treatments ($p < 0.05$).

Content adapted from Ahmad et al. | Figure reproduced from the original article

07 Theme: ICT in Agrifood Sustainability

Stable foliar colonization of nanocoated nitrogen-fixing bacteria enhances crop nitrogen supply

January 2026 | Nature Food |Volume 7

Introduction: Modern agriculture relies heavily on synthetic nitrogen fertilizers, which contribute to soil degradation, water eutrophication, and greenhouse gas emissions, making biological nitrogen fixation (BNF) a promising sustainable alternative. However, foliar application of N-fixing bacteria is limited by harsh leaf-surface conditions, including UV radiation, high oxygen, rainfall, and desiccation. To address this challenge, the researchers developed a TA-Fe-SA nanocoating for Klebsiella variicola W12 to enhance bacterial protection, adhesion, biofilm formation, and stable leaf colonization, with the goal of improving BNF and plant nitrogen supply while reducing dependence on synthetic N fertilizer.

Key findings: The results showed that the nanocoating effectively protected the N-fixing bacterium W12 from harsh conditions on leaf surfaces, including UV radiation, desiccation, oxidative stress, and rainfall, while improving bacterial adhesion and survival. At 14 days after application, nanocoated W12 showed approximately 3.3-fold higher colonization on rice leaves than uncoated bacteria and increased the contribution of biological nitrogen fixation to plant nitrogen from 13.69% to 27.89%. In field trials, the nano-inoculant increased rice grain yield by 27.14% and total nitrogen content by 28.09%, with the potential to reduce chemical nitrogen fertilizer use by approximately 74.38 kg N/ha. Overall, this approach improves the survival and colonization of N-fixing bacteria on leaves, enhancing natural nitrogen supply to crops and potentially reducing dependence on chemical fertilizers.

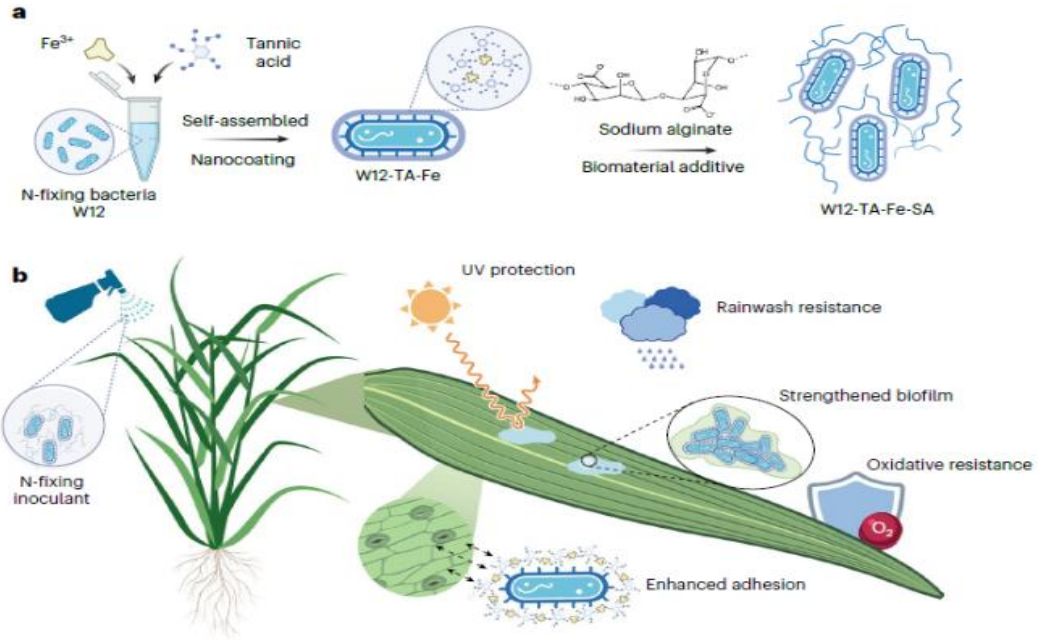


Figure | Schematic illustration of preparation and foliar application of nanocoated N-fixing bacteria.

Content adapted from Liao et al. | Figure reproduced from the original article

EVENT

01

2026 SNZ International Workshop Registration Form

9–10 September 2027 | In-person | Taipei, Taiwan |

Agriculture accounts for nearly one-quarter of global greenhouse gas (GHG) emissions, making technology-driven solutions critical to achieving measurable low-carbon outcomes. To advance this transition, FFTC, together with TARI, TLRI, and TCDARES under Taiwan's Ministry of Agriculture, will hold the 2026 International Workshop in Taipei, showcasing applications of AI, IoT, robotics, and big data in precision rice farming, smart livestock, digital cold chains, and emerging agrifood systems, while exploring practical pathways for the green transition of smallholders across the Asia-Pacific region.

Content adapted from FFTC| Image source: FFTC

02

Oxford Farming Conference 2027 – Harmony

6–8 January 2027| In-person | Oxford, United Kingdom |

The Oxford Farming Conference (OFC) 2027 will take place from 6–8 January 2027 in Oxford, United Kingdom, under the theme "Harmony." The conference will bring together stakeholders from the agricultural, rural, and food sectors to exchange ideas and explore the future of farming.

Amid global market uncertainty and environmental challenges, OFC27 will explore how greater collaboration can strengthen the stability and sustainability of the farming and food sector. Key areas will include land use and the environment, global trade and policies, technology, science, and industry collaboration, with a focus on building a more resilient and sustainable food and farming system.

Content adapted from OFC| Image source: OFC

03

14th International Conference on Asia Agriculture and Animal (ICAAA 2027)

8–10 January 2027 | In-person | Fukuoka, Japan |

The 14th International Conference on Asia Agriculture and Animal (ICAAA 2027) will be held in Fukuoka, Japan, from January 8–10, 2027. The conference aims to promote international research exchange and collaboration in agriculture and animal science.

Key topics include sustainable and climate-smart agriculture, smart and precision farming, agricultural biotechnology, food security, animal science, One Health, and agricultural innovation.

Content adapted from ICAAA | Image source: ICAAA

04

International Statistical Ecology Conference 2027 (ISEC 2027)

8–15 January 2027 | In-person | Mérida, Yucatán, Mexico |

ISEC 2027 will be held 8–15 January 2027 in Mérida, Mexico, bringing together statisticians and ecologists to exchange advances in statistical methods, machine learning, AI, and ecological applications through workshops, talks, and posters.

Content adapted from ISEC| Image source: https://x.com/ISEC_stats_ecol

05

11th International Conference on Sustainable Energy Engineering (ICESS 2027)

14–16 January 2027 | In-person | Adelaide, Australia |

The 11th International Conference on Sustainable Energy Engineering (ICESS 2027) will be held 14–16 January 2027 in Adelaide, Australia. The conference focuses on renewable energy, energy storage, energy efficiency, and low-carbon development, with interdisciplinary connections to resource use, carbon reduction, soil, and environmental sustainability.

Content adapted from ICESS | Image source: ICESS

06

31st Annual No-till on the Plains Winter Conference

19–21 January 2027 | In-person | Wichita Marriott, Wichita, Kansas, USA|

The 31st Annual No-till on the Plains Winter Conference will take place on January 19–21, 2027, at the Wichita Marriott in Wichita, Kansas, USA. Focusing on no-till farming, regenerative agriculture, soil health, and sustainable agricultural production systems, the event will provide a platform for farmers, researchers, and agricultural professionals to exchange practical experience, knowledge, and innovative approaches.

No-till On The Plains

Content adapted from No-till on the Plains | Image source: No-till on the Plains

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