

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

Toward Harmonized Sustainability: Advancing Circular Economy through LCA

Global demand for reliable environmental metrics is rising, with life cycle assessment (LCA) emerging as a cornerstone for building sustainable and circular agri-food systems. This issue's **Research** features review highlights of LCA and its extension to life cycle sustainability assessment (LCSA), which are essential for evaluating trade-offs in emissions, resource use, and end-of-life impacts. While biobased products support decarbonization, their benefits are constrained by land-use change, high energy demands, and inconsistent boundaries. The study calls for standardized metrics, integration of environmental, economic, and social dimensions, and cradle-to-cradle strategies. Complementary articles advance this agenda: one reviews sustainability indicators, another addresses biodiversity and soil health in organic agriculture, while two case studies assess food waste-to-energy systems and China's cold chain, underscoring trade-offs and opportunities for circular solutions.

News spotlights circular solutions, from Japan and China's food waste-to-feed programs to Vietnam–Netherlands biogas projects and Taiwan's composting and biochar innovations. **Policy** features FAO's nutritional LCA guidance, the U.S. strategy to halve food waste, and Australia's Circular Economy Framework, all advancing standardized metrics and circular practices. **Open Data** highlights digital tools—LCA Software Directory, openLCA, and UNEP's GLAD platform, strengthening evidence for sustainable agri-food transitions.

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RESEARCH

01 THEME: MRV (Measurement, Reporting, Verification)

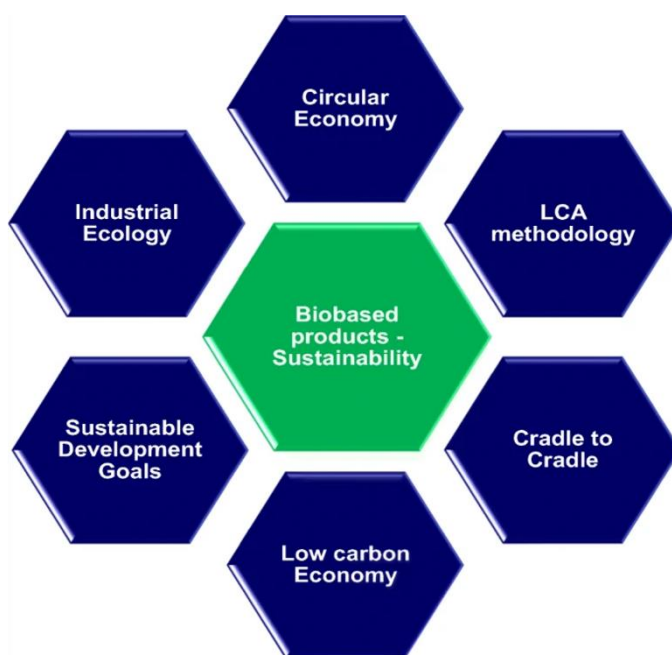
Biobased products and life cycle assessment in the context of circular economy and sustainability

September 7, 2020 | Materials Circular Economy | [Source](#) |

Introduction: Researchers from the CSIR-Indian Institute of Chemical Technology, India, and the National University of Singapore review how biobased products can advance a low-carbon and circular economy. The study examines life cycle assessment (LCA) and its extension, **life cycle sustainability assessment (LCSA)**, as key tools to evaluate environmental, economic, and social impacts in the expanding biobased economy (BBE). It also addresses the limitations of applying LCA to biobased products and discusses potential solutions, highlighting how circular economy frameworks—particularly the **Cradle-to-Cradle (C2C)** approach—can strengthen their role in mitigating climate change and resource depletion.

Key findings: The review highlights that although biobased products reduce reliance on fossil resources, their production is not automatically sustainable, as indirect land use change (ILUC) and energy-intensive processing can offset climate gains. LCA helps reveal these trade-offs by assessing emissions, resource use, and end-of-life impacts. Case studies on microcrystalline cellulose and propionic acid showed that electricity and chemical inputs dominate environmental burdens, while process optimization reduces carbon footprints. A holistic view requires LCSA, which combines LCA (environmental), life cycle costing (LCC, economic), and social LCA (sLCA, social) under the triple bottom line model. Linking

LCA with circular economy strategies—such as recycling, industrial symbiosis, life cycle gap analysis (LCG-A), and mass balance methods—can strengthen sustainability outcomes. Standardization efforts (ISO/TC 323) are advancing common frameworks to measure circularity, improving comparability and policy alignment. Yet challenges in data quality, boundary setting, and methodology persist. The authors conclude that biobased products must be designed within C2C systems, supported by harmonized metrics and comprehensive LCSA, to fully contribute to a resource-efficient green economy.



Graphical abstract

02 THEME: MRV (Measurement, Reporting, Verification)

Toward a framework for selecting indicators of measuring sustainability and circular economy in the agri-food sector: a systematic literature review

March 2, 2022 | The International Journal of Life Cycle Assessment | [Source](#) |

Introduction: An Italy-based research team from the University of Tuscia and University of Rome conducted a systematic literature review to address the lack of a harmonized framework for selecting sustainability and circular economy (CE) indicators in the agri-food sector. Focusing on the Triple Bottom Line (environmental, economic, and social dimensions), the study highlights how inconsistent use of indicators and limited application of Life Cycle Thinking (LCT) tools—such as Social-LCA (S-LCA) and Life Cycle Costing (LCC)—undermine comparability across studies. Reviewing 99 peer-reviewed articles published up to early 2021, the authors provide an overview of existing indicators, examine their strategic applications, identify methodological gaps, and propose pathways toward a standardized measurement framework for agri-food systems.

Key findings: The review grouped indicators into 3 strategic clusters: **Assessment-LCA** (environmental impacts), **Best practices** (guidelines and frameworks), and **Decision-making** (business choices). Climate change was the most frequently examined issue, reflecting the “trilemma challenge” posed by agri-food activities. While the environmental pillar dominates, half of the 99 studies integrated all 3 **Triple Bottom Line (TBL)** dimensions, showing growing attention to holistic sustainability. Economic indicators—especially profitability and investment—were also prominent. Methodologically, LCA remains the dominant tool, but CE assessments are limited by scarce use of Social-LCA and LCC. The review highlights cooperation across supply chains and eco-innovation as critical dimensions for future indicator design. Advancing toward a harmonized framework requires integrated assessments, broader impact categories, and active stakeholder engagement, including policymakers, to align with international standards such as the SDGs. Future research should also expand quantitative metrics, as most existing evidence is based on qualitative case studies, to better guide sustainable and circular agri-food transitions.

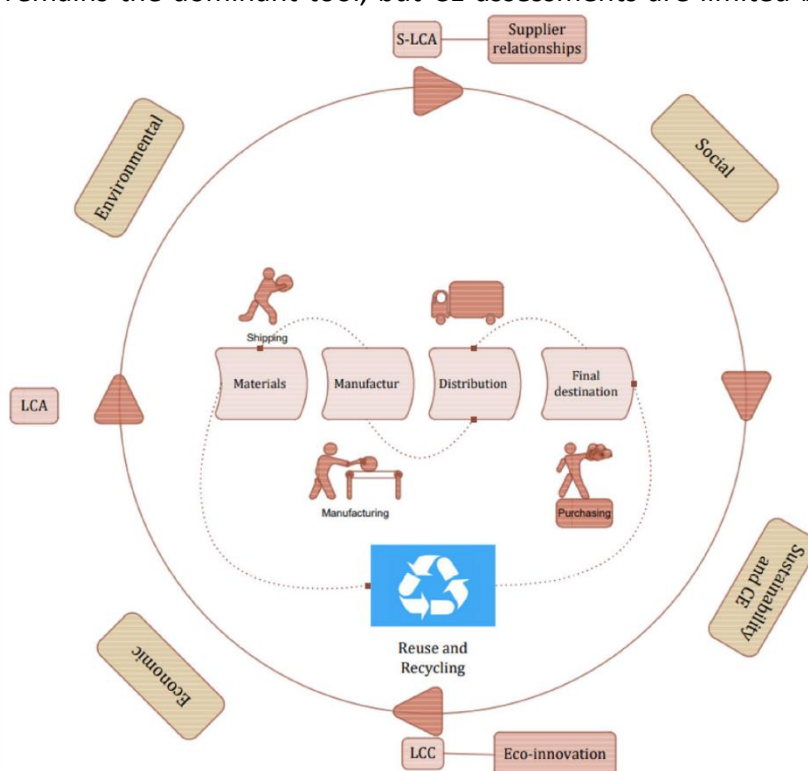


Figure | Framework.

03 THEME: MRV (Measurement, Reporting, Verification)

Towards better representation of organic agriculture in life cycle assessment

March 16, 2020 | Nature Sustainability | [Source](#) |

Introduction: Researchers from INRAE (France), Aarhus University (Denmark), and Chalmers University of Technology (Sweden) argue that conventional Life Cycle Assessment (LCA) misrepresents organic and other agroecological systems, highlighting the need to strengthen LCA to guide food-system transformations toward the SDGs and Paris Agreement. They point to 3 core gaps: missing indicators for key environmental issues, a narrow product-based perspective, and inconsistent treatment of indirect effects. To address these, the article contrasts LCA with the ecosystem-services framework and outlines pathways to make assessments more aligned with sustainability transitions.

Key findings: The article shows that LCA systematically favors high-input systems by minimizing impacts per kilogram while overlooking ecosystem services at the landscape scale. Despite rapid growth of agri-food LCAs, essential dimensions of agroecological performance remain poorly represented. Organic systems demonstrably enhance biodiversity (~30% higher species richness) and soil microbial activity, yet biodiversity is considered in fewer than 5% of livestock LCAs and in only 12% of organic–conventional comparisons. Soil health contributions from diverse rotations and cover crops are also neglected, with some models even treating soil as part of the “technosphere,” excluding toxicity effects. Pesticide impacts are similarly underestimated: while global use rose from 1.5 to 2.6 kilograms of active ingredient per hectare between 1990 and 2015, ecotoxicity appears in

only 14% of livestock LCAs and toxicity in 26% of organic–conventional studies.

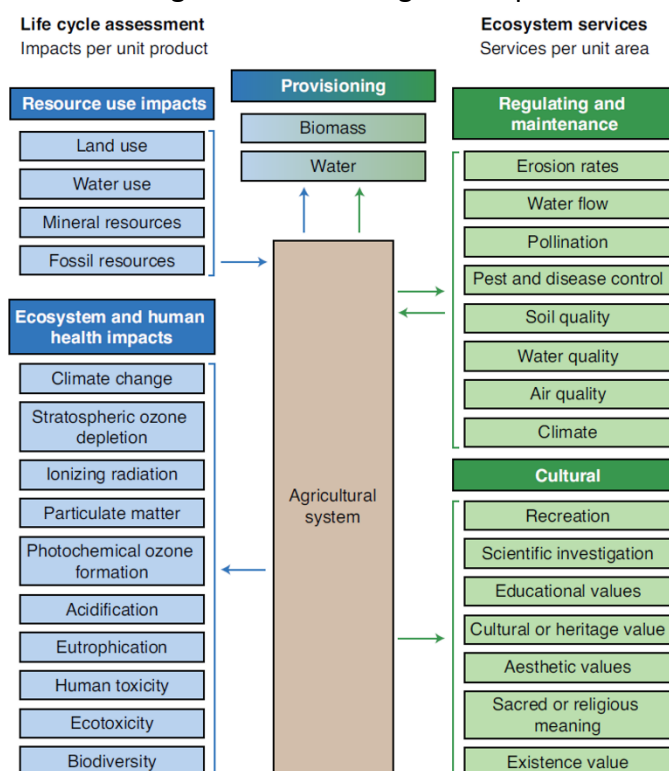


Figure | LCA and ecosystem services conceptual frameworks.

In addition, current LCAs rarely account for nutritional quality, product attributes, or ethics such as animal welfare, and assigning extra GHGs to organic systems through Indirect Land-Use Change (ILUC) or “carbon opportunity cost” oversimplifies complex land-use dynamics. The authors recommend strengthening LCA with new indicators for soil degradation, biodiversity, and pesticide impacts; combining product- and area-based units; integrating ecosystem-service valuation; regionalizing data; and treating indirect effects with caution to provide more balanced guidance for agroecological transitions and SDG-aligned policy.

04 THEME: GHG Emission Reduction

Conversion of food waste to energy: A focus on sustainability and life cycle assessment

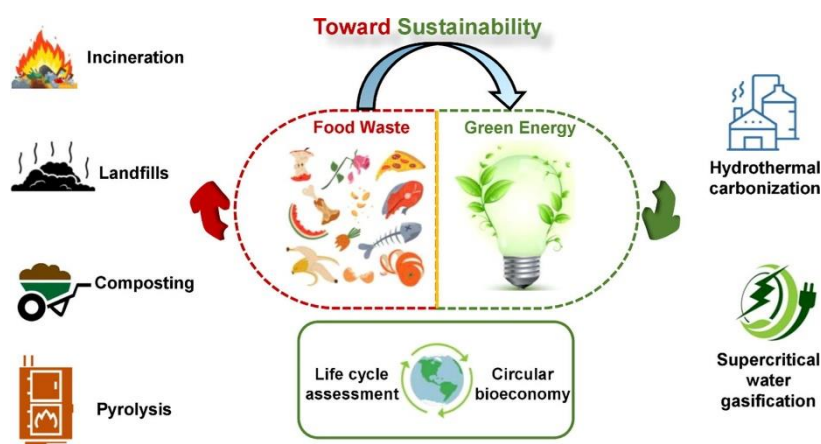
October 15, 2021 | Fuel | [Source](#) |

Introduction: A research team from SRM Institute of Science and Technology and Sri Sivasubramaniya Nadar College of Engineering in India reviews sustainable pathways for converting food waste into energy. With global food losses exceeding 931 million tons annually and projected to reach 2.2 billion tons, turning this untapped resource into renewable energy is urgent, as conventional disposal methods like burning or landfilling waste resources and cause severe pollution. The study evaluates both established technologies (incineration, landfills, composting, anaerobic digestion, pyrolysis, biochemical conversion) and emerging options like hydrothermal carbonization (HTC) and supercritical water gasification (SCWG). Assessments draw on life cycle analysis (LCA), multi-objective optimization, and circular bio-economy concepts, with attention to safety and future directions for sustainable development.

Key findings: Traditional options like incineration and landfills allow quick disposal but emit GHGs, leachates, and toxic byproducts. Biological methods are more sustainable as composting recovers heat and nutrients, while anaerobic digestion can generate up to 0.81 L/g biogas yield in two-stage digesters. Thermochemical routes such as pyrolysis produce biochar and bio-oil, and biochemical conversion yields ethanol, though it is capital intensive and purification remains costly. Advanced methods show greater promise: HTC raised calorific values of food residues from 25.1 to 33.1 MJ/kg, and SCWG achieved hydrogen yields above 8 mol/kg with catalysts.

LCA, multi-objective optimization, and circular bio-economy models confirm that optimized pathways outperform landfill and incineration in reducing emissions and enhancing resource recovery. Still, barriers persist: HTC faces scale-up challenges in pump and reactor design, while SCWG must address corrosion and reaction uncertainties. More broadly, high capital costs, process instabilities, and weak policy frameworks limit deployment. Future directions include applying machine learning for process optimization, advancing nutrient recovery, and integrating circular bio-economy models to valorize waste into fuels, fertilizers, and bioproducts. Sustainable solutions will require combining advanced technologies with supportive governance and robust safety standards.

Graphical abstract



05 THEME: GHG Emission Reduction

Assessing the lifecycle greenhouse gas (GHG) emissions of perishable food products delivered by the cold chain in China

June 20, 2021 | Journal of Cleaner Production | [Source](#) |

Introduction: Researchers from the University of Michigan (USA) analyzed the lifecycle GHG emissions of perishable foods—vegetables, fruits, meat, and aquatic products—delivered by China’s cold chain. With the cold chain market projected to nearly double between 2019 and 2026, understanding its climate impacts is crucial. The study addresses a knowledge gap by examining the trade-off between reducing food losses and the emissions generated by refrigeration. Using a cradle-to-consumption lifecycle assessment (LCA) with 1 kg of edible food consumed as the functional unit, the research integrates inventory data, Monte Carlo simulations, and sensitivity analysis of 22 parameters. It focuses on post-agriculture emissions from three key sources: refrigerant leakage, energy use, and food loss and waste (FLW)

Key findings: Agriculture dominates lifecycle emissions, especially for meat and aquatic products (74–89%), yet cold chain and household stages remain significant. For fruits and vegetables, agriculture and cold chain each contribute about 47% of total emissions. Within post-agriculture stages, emission sources differ: in meat/aquatic scenarios, households, retail, and refrigerated warehouses are largest contributors, with household shares reaching 31–41% in medium-temperature (MT) cases. For fruits and vegetables, most emissions stem from warehouses and first refrigerated transport. Lower-temperature (LT, frozen) storage increases impacts; for example, LT meat generates 1.7 kg CO₂eq/kg more than MT meat due to longer storage times.

By source, energy use drives 61% of post-agriculture emissions in fruit/vegetable cases, while FLW dominate in meat/aquatic products, magnified by their high embodied carbon. At the national level, a fully developed cold chain could add 280–400 Mt CO₂eq annually, about 3% of China’s 2018 total emissions. Sensitivity analysis highlights storage time, food loss rates, and agricultural emission intensity (C_{food}) as key drivers. Mitigation options include improving refrigeration efficiency, adopting low-GWP refrigerants, using renewable energy, shortening storage durations, and reducing consumer food waste. Overall, cold chains help prevent spoilage but must be paired with technological upgrades and behavioral changes to secure net climate benefits.

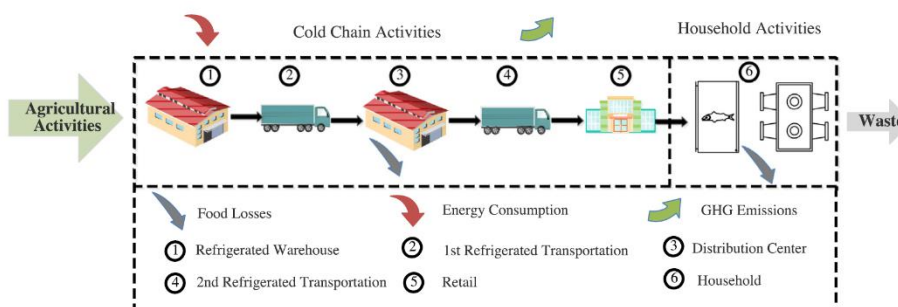
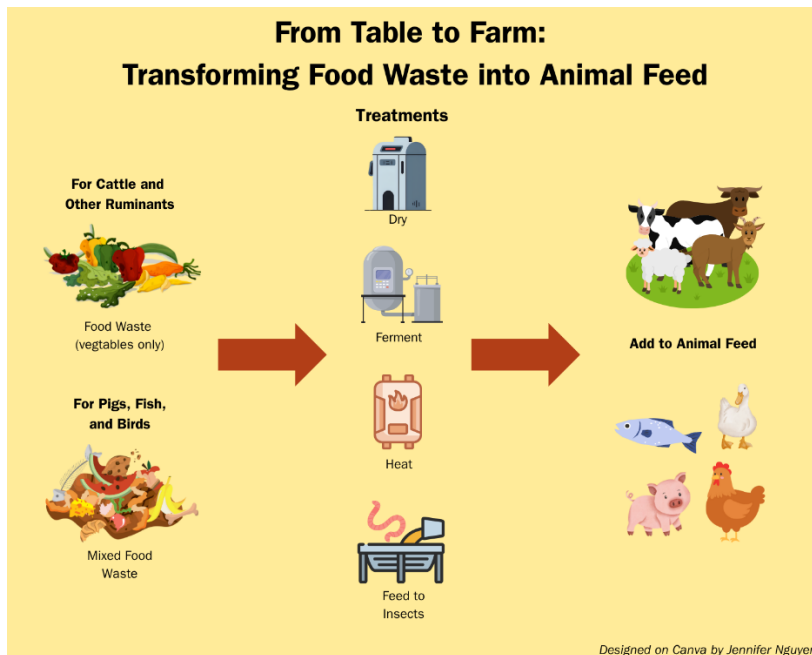


Figure | The lifecycle of food product and cold chain system boundary. The complete lifecycle of perishable food product starts from agriculture activities and then is delivered through cold chain logistics. The post-agriculture activities are focused on this paper.

NEWS

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

Tapping an innovative climate solution: upscaling food waste to animal feed in Japan and China

July 31, 2025 | [New Security Beat](#) (Wilson Center's Environmental Change and Security Program blog) |

Japan and China are advancing the conversion of food waste into animal feed to cut methane emissions and reliance on imported grain. Japan's Ecofeed program, launched in 2005, now processes over 300,000 tons annually—12% of domestic feed—after successfully diverting much of its manufacturing and wholesale waste under a certified quality system. China, which banned food waste feeding during the African Swine Fever crisis, is reviving the practice through 20 pilot projects under its 2024 Anti-

Food Waste Law. In contrast, U.S. adoption remains limited by strict regulations and low incentives, despite studies showing treated food waste feed reduces GHG emissions by 60%. Innovative alternatives, such as using black soldier fly larvae to recycle mixed food waste into FDA-approved feed, are also gaining traction. These models demonstrate the economic and environmental potential of circular food systems.

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

Turning waste into wealth in Vietnam: Dutch technology to convert livestock waste into valuable resources

July 31, 2025 | [Agroberichten Buitenland \(Nieuwsbericht\)](#) |

Livestock waste, which makes up nearly 80% of global agricultural waste, is a major source of water pollution, soil degradation and GHG emissions. To address this, Vietnam and the Netherlands are cooperating under their 2014 **Strategic Partnership Arrangement (SPA) on Sustainable Agriculture and Food Security**. Building on Dutch expertise in nutrient recycling and biogas, the social enterprise Verdant Biogas B.V. has introduced hybrid bio-digesters for small and medium farms in Vietnam.

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Successfully tested in the Mekong Delta and highlighted at a May 2025 seminar in Ben Tre province, these systems convert manure into renewable energy and organic fertilizer, providing clean cooking fuel, reducing pollution, and generating income for farmers. The initiative supports Vietnam's net-zero by 2050 target while advancing circular agriculture and rural resilience.



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

Agricultural recycling technology unveiled: fallen leaves and vegetable waste turned into compost, prunings become green commodities

August 7, 2025 | [Central News Agency \(CNA\)](#) (In Chinese) |



Taiwan's Taoyuan District Agricultural Research and Extension Station (TYDARES), Ministry of Agriculture (MOA) has introduced 3 circular agriculture technologies to turn farm residues into valuable resources. A modular **Smart Aeration Composting Device**

accelerates campus leaf composting, reaching 70°C to kill pathogens and completing the process in 3 months—75% faster than traditional methods, while saving schools transport and fertilizer costs. For farms, a **Continuous Aeration Composting System** converts vegetable waste into compost within 1.5 months, reducing odors and pests. Meanwhile, a mobile **Biochar Furnace with Smoke Collection** transforms orchard prunings into biochar for soil improvement or eco-products, while cutting PM2.5 emissions and transport costs. Already adopted by over 20 schools and farms, these innovations integrate recycling with education, promoting cost savings, waste reduction, and progress toward Taiwan's net-zero goals.

04 THEME: Policy Incentives, Financing, Pricing; Others

RDA-IRRI champions climate-smart pest management for sustainable rice production

May 13, 2025 | [International Rice Research Institute \(IRRI\)](#) |



The International Technology Cooperation Center of Korea's Rural Development Administration (ITCC-RDA) and the International Rice Research Institute (IRRI) held a 5-day training on Integrated Pest Management (IPM) in Laguna, Philippines, on May 13, 2025. First introduced in the 1970s, IPM emphasizes prevention and ecological control over chemical use, tackling pesticide

resistance and climate impacts. IRRI scientists noted that rice yields decline by 10% for every 1°C rise in minimum temperature, highlighting the urgency of sustainable practices. To address this, IRRI promotes **Climate-Smart Pest Management (CSPM)**, which integrates IPM with climate adaptation to cut pest-driven losses, raise farmer incomes, and build resilience. In the Philippines, farmers are scaling CSPM through Biological Control Agents (BCAs) such as *Trichogramma* against Yellow Stem Borers (YSB), with policy and investment support critical to ensure sustainable adoption.

05 THEME: GHG Emission Reduction; Policy Incentives, Financing, Pricing; MRV (Measurement, Reporting, Verification)

New 117 million-ton resource: carbon credit exports could yield big money

August 19, 2025 | [VietnamNet Global](#) |

Vietnam's Ministry of Agriculture and Environment (MAE) has launched the **2025–2035 Low-Emission Crop Production Project** to modernize farming and meet growing international demands for carbon traceability. With crop production responsible for 80% of the sector's 116.5 million tons of CO₂ emissions, the plan targets a 30% cut in methane and a 10% reduction in total emissions from 2020 levels. Key measures include technical



packages for major crops (rice, coffee, cassava, sugarcane, and bananas), at least 15 scalable low-emission models, and sustainable product labeling. The project also pilots farming models that generate internationally recognized carbon credits, offering access to premium markets with 10–25% higher prices. Companies like Lam Son Sugar JSC are already testing such systems, but experts stress that a clear legal framework and standardized MRV systems (measurement, reporting and verification) are essential to unlock export potential and ensure benefits for farmers.

06 THEME: Carbon Sequestration

A new tool for net-zero agriculture: multiple grass types boost carbon sequestration in orchards

August 8, 2025 | [Central News Agency \(CNA\)](#) (In Chinese) |



Taiwan's Miaoli District Agricultural Research and Extension Station (MDARES), Ministry of Agriculture (MOA) has shown that introducing diverse groundcover grasses in orchards can significantly boost soil carbon sequestration, supporting net-zero agriculture goals. Screening over 50 species, researchers trialed perennial, low-creeping grasses in citrus orchards and found that species diversity, adaptability, and photosynthetic efficiency increased soil carbon storage by about 19.3%.

Phyla nodiflora (石莧) achieved the highest rate (9.40 tons/ha) in sunny areas, followed by *Clinopodium brownei* (心葉水薄荷) (8.62 tons/ha) in shaded zones, while *Calyptocarpus vialis* (金腰箭舅) (3.12 tons/ha) and *Desmodium triflorum* (蠅翼草) (2.28 tons/ha) provided smaller gains. Beyond carbon storage, grass cover also improves soil moisture and biodiversity, offering a natural solution that balances productivity with ecological resilience.

POLICY

01 THEME: Sustainable Production; Sustainable Consumption

Integration of Environment and Nutrition in Life Cycle Assessment of Food Items: Opportunities and Challenges

Food and Agriculture Organization (FAO) | [Source](#) | [Report](#) |

This report, based on consensus among 30 international researchers, outlines methodological opportunities and challenges for **Nutritional Life Cycle Assessment (nLCA)** of food items, with the aim of enabling future assessments of meals and diets. It underscores that nLCA should go beyond quantifying nutrient masses to evaluate nutritional quality and potential health impacts, requiring collaboration across environmental, nutritional, and health sciences.

Key methodological recommendations include defining clear study purposes tailored to decision contexts and extending system boundaries to the consumption stage (“cradle to plate”) to account for processing, storage, and preparation effects. Functional units should reflect nutrition—such as nutrient indices, specific nutrient quantities, or serving size—while results should also be reported against mass- or volume-based reference flows to ensure comparability. Environmental assessments should prioritize food-relevant categories (climate change, water use, land use, eutrophication, ecotoxicity), alongside a dedicated nutrition impact category.

Research priorities include defining a minimum nutrient set, distinguishing nutrients to limit from those to encourage, refining nutrient indices, improving representation of uncertainty and variability, and expanding region-specific datasets, particularly from developing countries and downstream supply chain stages. Extending nLCA to meals and diets within absolute environmental limits is seen as essential for guiding sustainable agri-food policies that balance nutrition and ecosystem protection.

02 THEME: Circular Agriculture; Supply Chain

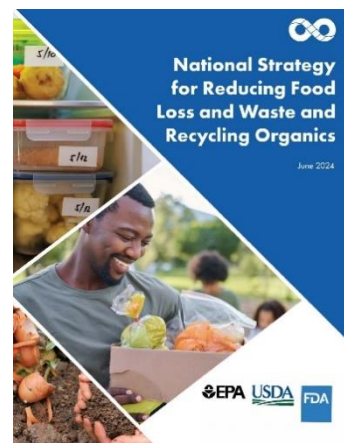
National Strategy for Reducing Food Loss and Waste and Recycling Organics

U.S. Environmental Protection Agency (EPA), U.S. Department of Agriculture (USDA), and U.S. Food and Drug Administration (FDA) | [Source](#) | [Report](#) |

This National Strategy, jointly issued by the U.S. EPA, USDA, and FDA, sets a coordinated plan to halve food loss and waste and achieve a 50% recycling rate by 2030, consistent with UN SDG Target 12.3. It prioritizes prevention of losses in production and distribution, reduction of consumer and

retail waste, and expansion of infrastructure for recycling organic materials, including food and yard trimmings.

The Strategy's 4 objectives are: **(1) prevent food loss, (2) prevent food waste, (3) increase organic waste recycling, and (4) support policies that incentivize these actions.** Anticipated benefits include advancing food and nutrition security, reducing household and business costs, creating jobs, and supporting a circular economy. Climate mitigation is central, as food is the largest landfill material and the source of 58% of landfill methane emissions; prevention is identified as the most effective strategy for cutting GHGs.



Challenges include limited public outreach, inadequate recycling infrastructure, insufficient research funding, market barriers for recycled products, and data gaps on food loss measurement. Implementation, guided by EPA's Wasted Food Scale, will leverage federal grants, technical assistance, education campaigns, and public-private partnerships (PPPs) to reduce emissions and build healthier, more resilient communities.

03 THEME: Climate Smart Agriculture; Supply Chain

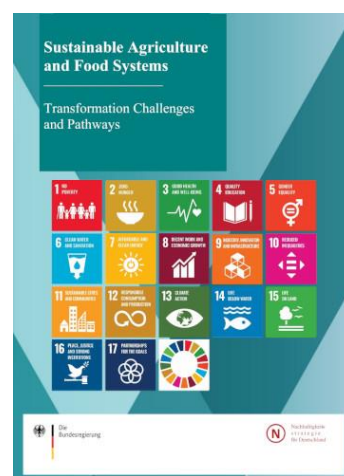
Germany Sustainable Agri-food Systems Report

Federal Ministries of Food and Agriculture (BMEL) and Federal Ministry of Agriculture, Food and Regional Identity (BMLEH) | [Source](#) | [Report](#) |

This report outlines Germany's strategy for a socially just and resilient transformation of agricultural and food systems, aligned with the UN 2030 Agenda, the Paris Agreement, and the Kunming-Montreal Global Biodiversity Framework (GBF). Led by the BMEL and BMUV, the strategy follows a One Health approach, linking human, animal, ecosystem, and climate health.

Domestic priorities include expanding organic farming and food markets to 30% by 2030, advancing livestock reform through mandatory state husbandry labelling and federal investment support, and mitigating climate change by reducing nitrous oxide (N₂O) and methane emissions (CH₄), improving fertilizer management, and enhancing carbon storage via soil and peatland protection. The Food and Nutrition Strategy further promotes healthier, plant-based diets, regional value chains, and halving food waste by 2030.

Internationally, Germany commits to sustainable value chains, including deforestation-free sourcing and fair trade, supported by the Supply Chain Due Diligence Act (LkSG). It engages in global partnerships such as the CFS, Global Alliance for Food Security, and the Agroecology Coalition, while fostering innovation and digitalization to improve efficiency and resilience. The strategy underscores

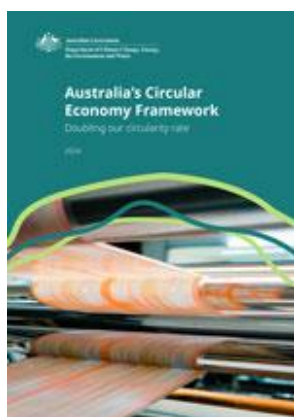


the need for broad societal participation and a reorientation of the EU Common Agricultural Policy toward “public money for public services” to reward farmers for environmental contributions.

04 THEME: Circular Agriculture

Australia’s Circular Economy Framework

Department of Climate Change, Energy, the Environment and Water (DCCEEW) | [Source](#) | [Report](#) |



This Framework commits Australia to a systemic transition built on 3 principles: **1) designing out waste and pollution, 2) keeping products and materials in use at their highest value, and 3) conserving resources while regenerating nature.** Circularity is defined as an economic model where products are designed to be reused, repaired, and recycled.

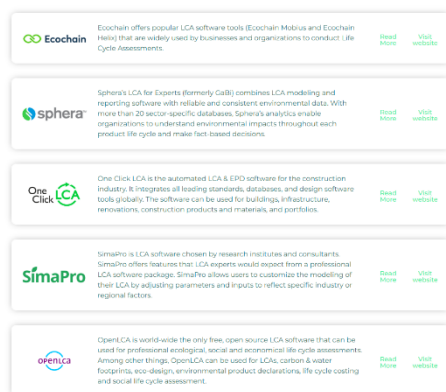
The framework’s central ambition is to double Australia’s circularity rate by 2035, from the current 4.6%. This is supported by 3 national targets: 1) reducing per capita material footprint by 10%, 2) increasing material productivity by 30%, and 3) safely recovering 80% of resources. Immediate priorities focus on 4 sectors—industry, built environment, food and agriculture, and resources—identified as offering the greatest impact and national advantage.

Expected benefits include annual net gains of AUD 26 billion in GDP and a 14% reduction in GHG emissions by 2035, alongside job creation, innovation, and stronger supply chain resilience. The framework also recognizes the importance of First Nations knowledge in resource stewardship. Implementation assigns businesses a role in innovating and reducing waste, while governments align regulations and funding to enable circular practices. Collectively, these measures aim to secure a cleaner, more productive economy for future generations.

OPEN DATA

01 THEME: Climate Smart and Net-Zero Toolkit

LCA Software Directory

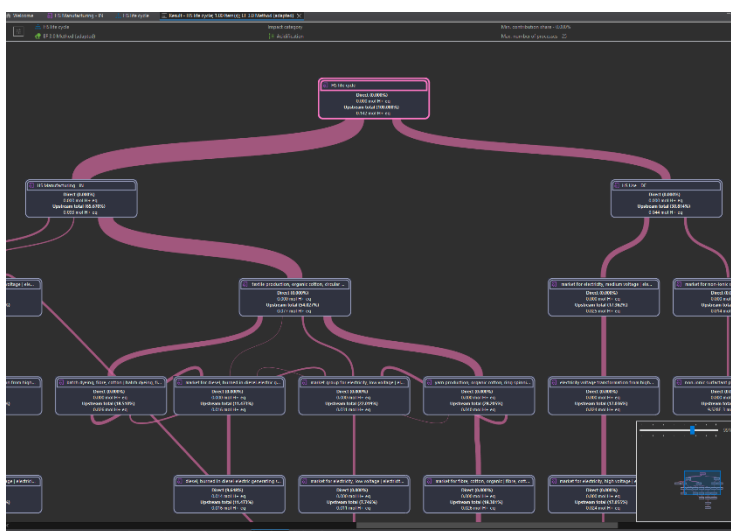
[LCA Software Directory](#) |

The Directory is an independent initiative run by Brussels-based LCA professionals. It aims to be a reliable source of market research, business news and investment insights for the Life Cycle Assessment (LCA) software sector. The project stresses that there is no single best tool—just the right tool for different needs. The site's Complete Overview lists more than 50 LCA tools on the market, including established programs like SimaPro, Sphera's GaBi, Ecochain, OneClick LCA and the open-source OpenLCA, as well as some newer offerings. LCA software helps assess environmental impacts across the entire

product life cycle and supports tasks such as footprinting, supplier assessments and sustainability reporting. Some packages are free or offer trial versions, while others charge fees for advanced features and larger data sets. In addition to the directory, the site hosts a blog with articles on sustainable design, product strategies and the broader benefits of LCA.

02 THEME: GHG Emission Inventory; Climate Smart and Net Zero Toolkit

openLCA

[GreenDelta](#) |

The openLCA platform is a free, professional Life Cycle Assessment (LCA) and footprint software developed by GreenDelta since 2006. It is open source, powerful and widely used, offering users the flexibility to share and modify models and the ability to collaborate via the openLCA Collaboration Server and the onlineLCA web tool. The ecosystem includes a desktop application, the openLCA Nexus database (the largest LCI repository), the onlineLCA webtool for mass LCA calculations, and a

Collaboration Server with versioning and synchronization features. onlineLCA enables organisations to run compliant LCA and EPD calculations online and supports large-scale, role-based collaboration.

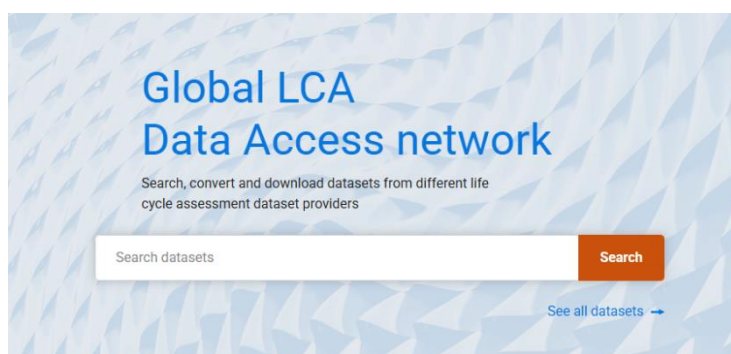
Services include training courses in English and other languages, optional support contracts and guided case studies. A global Partner Network of companies and experts provides regional support. The blog shares updates on new manuals, webinars, databases and conferences, while the Learn section provides video tutorials, case studies, manuals and a community forum, ensuring accessible resources for both beginners and experienced users.

03 THEME: GHG Emission Inventory; Climate Smart and Net Zero Toolkit

Global LCA Data Access network (GLAD)

[GLAD platform](#) |

GLAD is the largest non-commercial directory and "search engine" for Life Cycle Assessment (LCA) datasets, indexing over 80,000 entries from independent global providers (nodes). Hosted by the UN Environment Programme (UNEP) Life Cycle Initiative, GLAD is an open-source project focused on improving data accessibility and interoperability to support science-based decision-making by governments and businesses. GLAD does not store datasets (only metadata) but redirects users to providers, where data may be acquired for free or via a commercial fee. To enhance usability, GLAD provides a conversion function supporting formats like ecoSpold1, ecoSpold2, ILCD, and JSON-LD. Critically, GLAD does not assess data quality (such as accuracy or completeness); users must judge the data's fitness based on the provided metadata.



EVENT

01

The 32nd Vertebrate Pest Conference

March 2-5, 2026 | In-person | San Diego, California |

The conference facilitates knowledge exchange on human–wildlife conflicts and vertebrate pest management. It invites both practical and research-oriented papers and will feature special symposia on *Working Dogs and Wildlife*, *New Frontiers in Managing Wild Pigs*, and *Advancing Fertility Control for Vertebrate Pests*. Contributed papers may address topics such as field rodent and predator management, control hazards, bird management in urban and agricultural settings, threatened and endangered species, regulatory issues, zoonotic disease control, alternative methods, and socio-economic aspects. The 4-day program includes an optional field trip on human–wildlife conflicts, followed by 3 days of plenary, concurrent, and symposium sessions. Abstracts (≤300 words) and presenter biographies are due by November 21, 2025; accepted presenters are required to submit a manuscript for the peer-edited conference proceedings. A preliminary program will be available in December 2025.



02

The 5th NERPS (Network for Education and Research on Peace and Sustainability) 2026 Conference

March 4-7, 2026 | In-person | Tokyo, Japan |



The 5th NERPS Conference will explore how technological innovations can strengthen multilateralism while addressing risks to peace, sustainability, and equity. It provides a platform for students, researchers, and practitioners to share work through research presentations, sessions, roundtables, panels, and workshops, with awards for outstanding contributions. Abstracts are due

November 15, 2025, with optional full papers invited for publication in the *Peace and Sustainability* journal, Springer's *World Sustainability Series*, or other special issues. Financial aid is available for students submitting full papers, and registration closes February 20, 2026, for non-presenting participants.

03

The 73rd Annual Meeting of the Ecological Society of Japan (ESJ)

March 11-15, 2026 | Hybrid | Kyoto, Japan |

The 73rd ESJ Annual Meeting will be conducted in a hybrid format, with onsite presentations complemented by on-demand streaming of all major events. Applications for general presentations, symposia, workshops, and junior posters are open until **October 31, 2025**. The program includes an ER Symposium on *"Toward an Old-Growth Concept for Semi-natural Ecosystems"* and multiple Open Sessions addressing themes such as wildlife trade, extended phenotype, and human dimensions in ecology. Registration is now open, and the full program and presenter guidelines will be released in January 2026.



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Global Symposium on Sustainability of Agro-Eco-Systems through Climate Change Resilience

March 15-18, 2026 | In-person | Brasov, Romania |



ASABE Global Symposium on Sustainability of Agro-Eco-Systems through Climate Change Resilience

The symposium, hosted by ASABE and Transilvania University of Brasov, will provide a platform for dialogue on climate-resilient agro-ecosystems. Key session topics include bioeconomy and climate change, biodiversity preservation, food and nutrition security, and the role of AI and data science in sustainable agriculture. The program features plenary sessions, concurrent thematic groups, poster sessions, and networking opportunities, with tours scheduled after the main conference. Selected presentations may be invited to submit full peer-reviewed papers for inclusion in a Special Collection of an ASABE publication. Registration details will be announced shortly.